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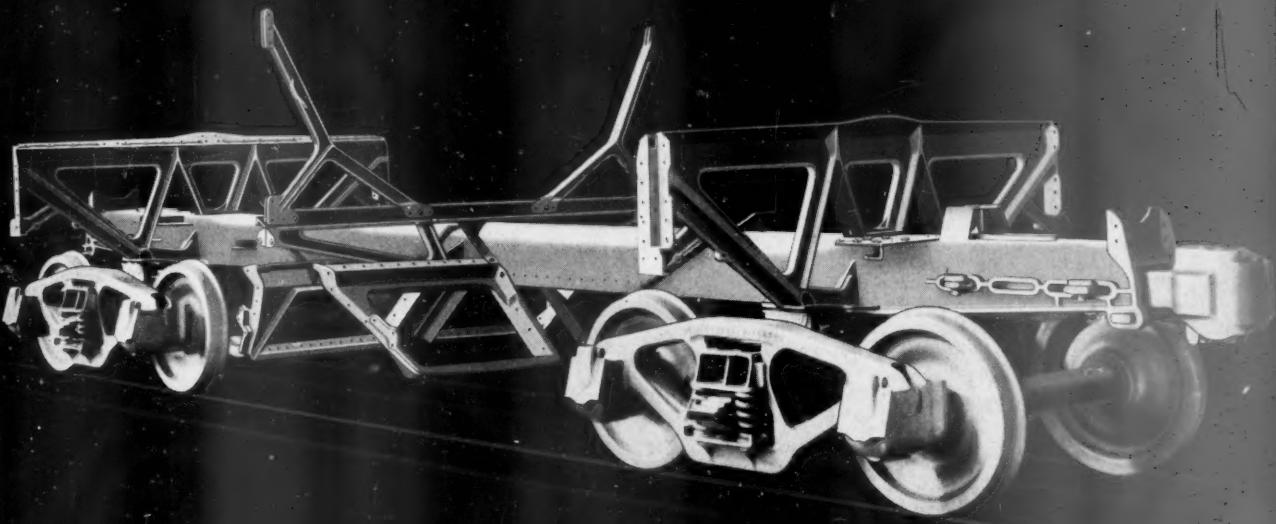
JUN 26 1937

Railway Age

DAILY EDITION

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Railway Age

DAILY EDITION

VOL. 102

JUNE 22, 1937

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Impressions Of the Exhibit

After a period of seven years without an exhibit it has required no small amount of courage on the part of members of the Railway Supply Manufacturers' Association to undertake to stage an exhibit of the magnitude of this one. Even though there are many new materials and new devices, and improvements in other well-established facilities, the changed conditions resulting from the depression itself, as well as those which are bound to transpire with the lapse of seven years, leave enough indeterminate factors in the situation so that real courage has been required to bring this exhibit about.

It is not strange, therefore, that the exhibitors are checking the results critically. That some are not completely satisfied is probably inevitable. Their dissatisfaction can hardly be attributed to a lack of adequate registration on the part of Mechanical Division members, however. The Mechanical Division registration at three o'clock Monday afternoon was within 11 per cent as great as it was at a comparable time during the 1930 conventions and exhibit. The total registration during the last week has been, of course, lower than during the first week of the past conventions, during the last three of which the meeting of the Purchases and Stores Division occurred in the first week.

One of the strong impressions left by a stroll about the exhibit floors of the auditorium is the lack of congestion at any point. This is all the more striking by comparison with the numerous points of congestion in the exhibits which were conducted on Young's Million Dollar Pier and is largely because of the widespread spaces and numerous aisles through which a large crowd can dissipate itself into unnoticeable density. In fact,

The Railway Age is a member of the Associated Business Papers (A.B.P.) and of the Audit Bureau of Circulations (A.B.C.)

Taking the Public Behind the Scenes

The human desire to see behind the scenes was taken advantage of over the week-end when, for the first time, the public was admitted to the show. Some weeks ago, the idea was conceived of putting in a rate of a cent a mile for excursions to Atlantic City from points within a radius of about two hundred miles. The excursions were participated in by seven railroads, all of whom report encouraging results. Railroad fan clubs and kindred organizations were informed as to the details of the occasion, while posters and other advertising media were used to attract people.

during the hours when the exhibition hall was opened to the public on Saturday and Sunday, during which 5443 people, aside from the railroad and railway supply men, were admitted, there was a complete absence of any sign of congestion.

It is apparent that fewer people visit the lower floor than visit the main floor of the auditorium. There are however, exhibitors on the lower floor who have expressed complete satisfaction with the attendance at their booths. And there are others, who are not so well satisfied. In some cases the difference is due to the difference in preparation on the part of the exhibitors.

It may be questioned whether the mere passage of a crowd through an aisle is an unmixed blessing to the exhibitor. It leads to confusion and interruptions which are not conducive to effectiveness in the demonstration of a model or, for that matter, in the conduct of any other type of business conversation. To make the lower floor effective, therefore, may require more forethought in preparation, not only of the exhibit itself, but in bringing the fact of the exhibit to the attention of those who should see it.

The Imperfection of Human Nature

In the report of the Car Construction Committee at the 1936 annual meeting of the Mechanical Division, and again in the report at this meeting, the committee has pointed out that some of the member roads continue to proceed independently in the development of their own freight-car designs, notwithstanding the fact that they had voted for the adoption of the steel-sheathed wood-lined box car as standard following its presentation by the committee in 1932. The committee suggested that in view of the facts it might better devote all of its available time and energy to other current problems than to the tremendous amount of work necessary to push forward the standard-car program. The committee further stated in this year's report that some of this lack of support for the standard car can be accounted for by the growing necessity for increasing the inside dimensions of the car. In this year's report the committee has presented a design calculated to satisfy this particular objection to the present standard car.

Whether or not the situation, so far as the support of the standard cars of the association is concerned, will be materially changed by the new design is a question for the future to answer. That it will be completely successful, however, is entirely too much to expect. While one may sympathize with the impatience of the committee when it sees the results of its labors only partially successful, it may not be out of place to call attention to certain fundamental facts of the situa-

tion which are not likely to be changed in any material respect so long as membership in the Association of American Railroads remains voluntary.

To have developed a finely balanced car design which has been of great value to many railroads whose resources do not permit them to maintain a highly developed mechanical-engineering organization is a service to the railroads at large of no mean importance. To a considerable extent it protects all of the railroads against the weakness of cars offered in interchange by such roads. Even to have developed certain outstanding details of construction which mark definite advances in quality over anything used in the past, such as the new center sill with reduced eccentricity of draft loading, is an accomplishment which has been well worth the effort of the committee to the railroads at large.

It is a fact which ought not to be overlooked, however, that, so long as the railroads are at liberty to exercise individual choice, no complete standard design is likely to be universally accepted, at least not before the members of the Association of American Railroads have passed through a slow period of education in which strong personal preferences and individual ideas of design have been removed by the long continued pressure of the logic of events. The only way in which a quicker result can be accomplished is by the employment of some form of force. That, we hope, is still contrary to the fundamental principles of American conduct.

Let the committee take solace in the thought that the faults in the situation lie not in its design, but in the imperfection of human nature.

Debates on Storekeeping

In arranging to present two papers at this week's Purchases and Stores Convention, one for and the other against what storekeepers choose to call direct pricing, the Purchases and Stores Division has, it would seem, done more than merely resort to a safe way of handling a hot iron. By introducing debates in its programs, the Division also appears, consciously or unconsciously, to have hit upon a method of increasing the popularity of its meetings and at the same time to have taken a positive stand for moderation and tolerance in association policies.

There is a tendency for an element in every organization, vested or thought to be vested with official or semi-official duties, to acquire extravagant ideas of responsibility or power and to become bureaucratic. Railroads are fertile ground for this because of their interdependence, the need for joint action in many operations and the similarity of problems. It is a situation which gives association officers numerous administrative problems requiring a fine discrimination.

Because some committees deal with standards, all committees usually feel bound to formulate rules or standards for general adoption. It is not always possible to study problems thoroughly, but the urge is to draw definite conclusions. Impatience with opposition is often shown and pressure is sometimes advocated by members to enforce observance.

In direct pricing, requisitions for materials issued from stores are priced in the stock-room by men who handle the material instead of by clerks in offices. The subject has been under consideration in the Division for ten years and is highly controversial. Why all roads should be expected to adopt the new method has not been explained by its enthusiasts, but the battle for direct pricing waxes warm and the resistance is stubborn. At last year's meeting, most of the discussion centered on direct pricing.

Subjecting this topic to debate is an open recognition by the Purchases and Stores Division that there are two sides to every proposition. It permits the Association to enlarge the facts for the information of its members and relieves it from the odium of attempting to tell the railroads what they must do. At the same time, the restoration of the debate to some semblance of its former place in public gatherings injects a sporting element in the proceedings which should arouse interest. So, on with the debate! It is good medicine for many ills which affect railway organizations, and the Purchases and Stores Division is to be commended in reviving the practice.

Thank God for John Lewis And Others

Apropos of what the *Daily* said a few days ago about John Lewis as a creator of anti-radical sentiment, there appeared a statement in the New York Herald Tribune on Monday morning that was highly significant. In a report of a farmer-labor conference at Napanoch, N. Y., the Herald Tribune said: "A warning that 'farmers generally are becoming rapidly opposed to the C. I. O. movement' was given to the conference by John Bosch, president of the Minnesota Farmers' Holiday Association." Consider the source of that "warning." The farmers are more radical in the Northwest than anywhere else. The farmer-labor movement is stronger and more radical in Minnesota than in any other state. The Minnesota Farmers' Holiday Association is the most radical farmers' organization in Minnesota, and yet it is the president of that association who gives warning that farmers generally are rapidly turning against the C. I. O.

Another significant development reported in Monday morning's newspapers was the fall of Premier Blum's "Popular Front" cabinet in France. The "Popular Front" in France consisted of three parties—the Com-

munist, which is the most radical; the Socialist, which is the next most radical, and the Radical, which, in spite of its name, is the least radical and is composed principally of the "petit bourgeois"—small business men, peasants and so on. The "Radicals" held the balance of power, and when the Blum government went too "leftist" to suit them, they pulled the skids from under it, and now apparently France is to have a "moderate"—i. e., a liberal-conservative government.

The *Daily* remarked the other day that John Lewis seems to have been born to change public sentiment in this country. The fears of the president of the Minnesota Farmers' Holiday Association apparently are the same as the hopes of the *Daily*. He advocates an early conference of farm and industrial labor groups. He evidently wants to get Mr. Lewis where farm leaders can tell him that the farmers don't care to have him run their country for them all by himself, or even to have him and his cohorts raise the costs of everything the farmers have to buy from industry for the supposed benefit of "labor" but for the actual benefit of labor union leaders.

In his commendable work of creating public sentiment against radicalism Mr. Lewis has some invaluable assistants. For example, there is Governor Earle of Pennsylvania, who has closed the Cambria plant of the Bethlehem Steel Company in the interest of "public order." Who is preventing public order at Johnstown? John Lewis and his private armies. When did it become the duty of a governor to establish public order by shutting down a huge manufacturing plant instead of by keeping his oath to enforce the laws against those causing public disorder.

Three cheers for John Lewis, Governor Earle of Pennsylvania, Governor Murphy of Michigan, Postmaster General Farley, Secretary of Labor Perkins and all the other labor leaders who are inciting violence and the other cowardly pussyfooting public officials who are so ably cooperating with them! The government of Great Britain has been conservative for a decade largely because of the general strike in 1926. The Popular Front government in France has fallen because the moderate radicals refused any longer to go along with the Communists and Socialists. And when even in the Northwest the farmers are getting mad at Mr. Lewis and his methods, it looks as if the main thing needed to turn back the tide of radicalism in the United States is to have Mr. Lewis and his supporters in politics go right ahead as they are going.

We forgot to bring our Gideon's Bible from the hotel, but as near as we can remember it says in one place, "Pride goeth before destruction and a haughty spirit before a fall," and in another place, "If the blind lead the blind, verily both shall fall into the ditch." We haven't our Bartlett's "Familiar Quotations" here, either, but we believe it was an ancient Greek or Roman who said, "Whom the gods would destroy they first make mad."

The Programs for Today

The Mechanical Division will hold its fifth session today and the Purchases and Stores Division its second session.

Mechanical Division

The Mechanical Division will meet in Room B, at the right of the stage in the main exhibit hall of the Auditorium. The meeting will be called to order at 9:30 a.m., daylight saving time, and is scheduled to adjourn at 12:30 p.m. The program follows:

Individual Paper: "What Next in Car Equipment," by L. K. Sillcox, First Vice-President, New York Air Brake Company.

Discussion of Reports on:

Arbitration Committee.
Committee on Prices for Labor and Materials.
Committee on Loading Rules.
Committee on Tank Cars.
Committee on Lubrication of Cars.

Purchases and Stores Division

The Purchases and Stores Division will meet in Room A at the left of the stage in the main exhibit hall of the Auditorium. The meeting will be called to order at 9:30 a.m., daylight saving time. The program follows:

Presentation and Discussion of Committee Reports:
Subject 4—Comparison of Material Stock Reports and Material Store Expenses.
Subject 6—Purchasing and Storekeeping for Highway Motor Vehicles.
Subject 9—Fuel.
Subject 10—Forecasting Material Requirements (Purchases and Shop Manufactured Stocks) to Coordinate Procurement with Actual Needs.
Subject 11—Pricing and Inventory.
Individual Paper—"Direct Pricing."
Affirmative—By B. T. Adams, District Storekeeper, Illinois Central Railroad.
Negative—By W. F. Redman, Traveling Storekeeper, Chicago & North Western Railway.
Subject 12—Purchasing Agents Organization, Practices and Office Records.
Subject 34—Maintenance of Way and Construction Materials.
Subject 35—Extension of Purchasing in Standard Packages.

Entertainment

10:30 A. M.—Organ Recital, Ball Room; William H. Jackson, Feature Pipe Organist.
2:00 P. M.—Organ Recital in Ball Room. William H. Jackson Feature Pipe Organist. Ladies' Bridge Party.
9:00 P. M.—Informal Dance in Ball Room. Johnny Johnson (at the Piano) and His Orchestra. Special Entertainment, Nevco Amusement Enterprises, Inc.

Registration Figures

The registration figures at three o'clock on Monday afternoon this year, as compared with similar figures for the five previous years, are shown in the following table. In making comparisons it must be kept in mind that the Purchases and Stores Division held its first session on Monday of the second week this year, although in

previous years it met during the first week. The registration figures given in the table for the P. & S. Division will, therefore, increase considerably during the next day or two and will compare more favorably with those of previous years.

	1922	1924	1926	1928	1930	1937
Mechanical, Division V.....	950	1,143	1,340	1,389	1,478	1,320
Purchases and Stores, Div. VI.	333	365	486	491	533	273
Motor Transport, Div. VIII.....	....	....	....	56	71	....
Railroad guests .....	....	....	....	588	775	699
Railroad ladies	924	1,075	1,140	1,236	1,114	937
Supply men	2,285	2,613	3,084	2,605	2,511	2,610
Supply ladies	569	673	700	731	588	531
Special guests	800	809	738	32	164	78
Complimentary .....	....	....	....	299	*	....
Total	5,861	6,678	7,488	7,427	7,234	6,448

* Complimentary registrations included in railroad guests.

Ladies' Handbag Lost

The daughter of V. M. Hench, of the Carnegie-Illinois Steel Company, Chicago, lost a handbag containing \$45, a return railroad ticket to New York, and address book and picture of sentimental value. Will finder return the bag, particularly the photograph, to Mr. Hench in Chicago or to the *Railway Age* booth.

P. & S. Promotions

Effective June 10, S. Sneddon, assistant general storekeeper, Canadian National at Winnipeg, Man., was appointed general storekeeper, Central Region, with headquarters at Toronto, Ont., to succeed E. D. Toye, a member of the General Committee of the Purchases and Stores Division, who died in May. Mr. Sneddon was succeeded by C. S. Argyle, district storekeeper at Transcona, Man. Mr. Argyle was succeeded by J. S. Park, district storekeeper at Edmonton, Alta., who in turn was succeeded by E. A. Russell, district storekeeper at Saskatoon, Sask. Mr. Russell was succeeded by J. B. Fraser, storekeeper at Point St. Charles, and the latter by W. C. Howard.

Retirement and Death Take Heavy Toll of P. & S. Members

Never before in the history of Division VI have so many members been removed from active participation in the association's work by death or retirement. The most recent deaths were those of M. J. Collins, general purchasing agent of the Atchison, Topeka & Santa Fe who died on June 6, and E. D. Toye, general storekeeper of the Central Region of the Canadian National and a member of the General Committee of the Division, who died in Toronto, Ont., in May, 1937. The division will also greatly miss J. G. Stuart, assistant purchasing agent of the Chicago, Burlington & Quincy, a past-president of the Railway Storekeepers' Association, whose death in September, 1936, at Aurora, Ill., removed one of the stimulating personalities and most consistently active counselors who ever graced the division's roster.

Other deaths which have occurred since the last meeting at Atlantic City among those prominent in the division include that of W. G. Black (C. & O.), a member of the general committee, who died in June, 1936; P. Hunter, purchasing agent, C. B. & Q., who died in Feb-

ruary, 1936; C. C. Kyle, purchasing agent of the N. P. and a past-chairman of the Division, who died in September, 1935; R. D. Crawford, general storekeeper, I.-G. N., who died in July, 1935; W. A. Hopkins, general purchasing agent, M. P., who died in January, 1935; E. J. Myers, general storekeeper, N. P., who died in April, 1933; H. A. Empie, purchasing agent, D. & H., who died in February, 1933; E. O. Griffin, assistant to president, St. L.-S. W., who died in September, 1932; Louis Lavoie, general purchasing agent, C. N., and a past member of the general committee, who died in August, 1932; and G. W. Bichlmeier, general purchasing agent, U. P., who died in October, 1932.

Several retirements have also occurred, including that of H. T. Shanks, general purchasing agent, L. & N., who retired on May 20, 1937; Otto Nelson, general storekeeper, U. P., who retired in August, 1934, and Frank W. Taylor, purchasing agent, S. P.-Pac. Sys., who retired in January, 1933.

Deaths Among Mechanical Division Members

Our attention has just been called to an omission from the list of deceased members of the Mechanical Division given on page 1004D46 of the June 17 *Daily*. Samuel Lynn, a life member of the Division, died on August 8, 1936, at the age of 67. He had been superintendent of rolling stock of the Pittsburgh & Lake Erie, Pittsburgh, Pa., and chairman of the Loading Rules Committee, 1931-36. He had been also an active member of the Railroad Club of Pittsburgh, and if we mistake not was one of the charter members.

P. & S. Committees on Resolutions and Memorials

At the session of the Purchases and Stores Division yesterday, C. E. Smith, vice-president, N. Y. N. H. & H., was appointed chairman of the resolution committee, and C. B. Hall, stores manager, Pennsylvania, and A. S. Moorehead, general storekeeper, Illinois Central, were appointed members.

The Memorials committee will consist of M. E. Towner, general purchasing agent, Western Maryland, as chairman, and A. H. Lillengren, purchasing agent, Great Northern, and T. H. Ryan, assistant purchasing agent, Wabash, as members.

Railway Buying in 1937

The weekly issue of the *Railway Age* of June 19 contained an article giving at some length information regarding railway buying from the manufacturing industry in the first five months of 1937. The estimated value of materials delivered and equipment ordered was \$418,949,000, as compared with the following in comparable months in the preceding eight years: \$634,000,000 in 1929; \$475,771,000 in 1930; \$350,904,000 in 1931; \$129,000,000 in 1932; \$94,500,000 in 1933; \$217,500,000 in 1934; \$157,000,000 in 1935, and \$271,000,000 in 1936. Of the expenditure in the first five months of 1937, there was made \$111,430,000 for equipment and \$307,520,000 for materials.

It will be noted that total buying in 1937 was larger than in any of the previous eight years, excepting 1929 and 1930, and was 55 per cent larger than in 1936. The gain in buying of equipment over 1936 was 91 per cent, and in buying of materials 44 per cent.

52 Railroads on P. & S. Committees

A total of 171 purchasing and stores officers and employees from 52 railroads formed the working organization of the Purchases and Stores Division during the past year, according to an analysis which has been made by the *Railway Age*. There were in all 28 committees, including 21 subject committees, while the personnel consisted of 74 officers and employees of purchasing departments and 97 officers and employees of stores departments.

In point of numbers, the Pennsylvania is the largest

Analysis of Purchases and Stores Committees—1937

	Chairmen	Members	Total
A. T. & S. F.	6	7	
Atlantic Coast Line	1	2	3
Baltimore & Ohio	5	5	
Bangor & Aroostook	2	2	2
Boston & Maine	2	3	5
Canadian National	4	4	
Central of Georgia	1	2	3
Chesapeake & Ohio	2	4	6
Chicago & Eastern Illinois		1	1
Chicago & North Western	3	5	8
Chicago, Burlington & Quincy	1	5	6
Chicago Great Western	2	2	2
C. M. St. P. & P.	3	5	8
Chicago, Rock Island & Pacific	1	5	6
C. St. P. M. & O.	1	1	1
C. C. C. & St. L.	1	1	
Delaware & Hudson	2	2	2
Delaware, Lackawanna & Western	2	2	
Denver & Rio Grande Western	1	1	1
Elgin, Joliet & Eastern	1	1	
Erie	1	5	5
Fruit Growers' Express	1	1	1
Grand Trunk Western	1	1	
Gulf, Colorado & Santa Fe	1	1	1
Gulf, Mobile & Northern	1	1	1
Illinois Central	2	1	3
Kansas City Southern	1	2	3
Lehigh & New England	1	1	1
Lehigh Valley	2	2	4
Louisville & Nashville	1	1	2
M. St. P. & S. S. M.	1	1	1
Missouri-Kansas-Texas	1	4	5
Missouri Pacific	1	6	7
Mobile & Ohio	1	1	1
New York Central	6	6	
New York, New Haven & Hartford	1	2	3
Norfolk & Western	2	2	3
Northern Pacific	3	3	
Pennsylvania	3	11	14
Pere Marquette	1	1	1
Pittsburgh & Lake Erie	1	1	1
Reading	1	1	2
Railway Express Agency	1	1	1
St. Louis-San Francisco	3	3	
Seaboard Air Line	3	3	3
Southern	4	4	
Southern Pacific Co.	4	4	4
Southern Pacific Lines	2	2	2
Texas & Pacific	1	1	1
Union Pacific	6	6	
Wabash	2	2	2
Western Maryland	3	3	3

contributor to the committee with 14 men assigned to committees, the Milwaukee and Chicago & North Western tying for second place with 8 men on committees from each of these roads. Next in order of participation are the Santa Fe and Missouri Pacific with 7 men each; the Chesapeake & Ohio, Chicago, Burlington & Quincy, Chicago, Rock Island & Pacific, New York Central, Union Pacific and Southern Pacific with 6 men

each; the Boston & Maine, Erie and Missouri-Kansas-Texas with 5 men each, and the Canadian National, Lehigh Valley and Southern with 4 men each. Of 28 chairmen, the Pennsylvania, Chicago & North Western and Chicago, Milwaukee, St. Paul & Pacific supplied 3 each; the Boston & Maine, Chesapeake & Ohio, Illinois Central and Lehigh Valley supplied 2 each. The details are given in the table. A total of 88 committee members come from western railroads and 83 from eastern and Canadian roads.

Electric Power Supply for Passenger Cars

Two reports of interest to car department men were presented on Thursday and Friday, June 17 and 18. These were the A.A.R. report on air conditioning and equipment lighting, which is summarized with the discussion in this issue, and the report on car electrical equipment, received by the Association of Railway Electrical Engineers. The latter report appears in full in the June, 1937, issue of *Railway Electrical Engineer* and it was abstracted with a part of the discussion in the *Daily Railway Age* for Friday, June 18. That part of the discussion which concerns train power supply is summarized in the following:

W. S. H. Hamilton, equipment electrical engineer, expressed the opinion that 440 volts will be required for power supply to the train from the locomotive or power car. J. A. Andreucetti, electrical engineer, Chicago & Northwestern, bore out this contention by stating that a 17-car train using 220 volts now under construction would require 900,000 circular mils of train line cable. The train power supply will be generated by a 600-kw. 220-volt three-phase generator and a part of the power will be used for overhead electric heating to reduce water requirements. On the last car all of the load will be electric and will constitute a 50-kw demand.

Six 350,000 c.m. cables will be used as train lines and the next installation will probably employ 440 volts. The higher voltage, he believes, is sufficient to meet all load requirements.

Mr. Hamilton said that less than 440 volts would make the size of connectors on automatic couplers too large. Four hundred forty volts on train lines, he said, can be used satisfactorily with 220 or 208 volts for standby power. Hazards, he said, are too high with 440 volts for yard service.

A. R. Walker, electrical engineer equipment, Illinois Central, replied to an inquiry by saying that the first on-a-car rectifiers were to be installed on his road this week on office cars which have high loads and travel very little. Ten rectifiers have been ordered and operating results will be available in the fall. He contended that it was necessary to stop at 440 volts for train power and that he has seriously considered 2300 volts. The Illinois Central, he said, is now handling 1500 volts direct current through automatic couplers, a problem which represents more difficulties than 2300 volts a.c. If trains are to be light, he said, they should not be weighed down with cable. Mr. Andreucetti questioned the use of 2300 volts, because of its increased space requirements.

J. E. Gardner, electrical engineer, Chicago, Burlington & Quincy, said that if a train has more than 10 cars, 220 volts is really not adequate. The advantage of 32 volts, he said, is that it permits of train lining in bad winter weather.

G. W. Wall, foreman electrician, Delaware, Lacka-

wanna & Western, proposed several questions which need to be answered, as follows: On what percentage of trains will head-end power be used? Will a train attendant be required? How will lay-over cars be serviced? Mr. Andreucetti said that it was not the intention of the committee to avoid operating problems, but that the immediate need was to determine future requirements.

W. A. Ross, Pyle-National Company, was called upon to give information concerning d.c. plugs and receptacles. He said that the 150-ampere size has been precipitated by the New York Central and the Pullman Company, that 200-ampere units were considered but that the 150-ampere size was finally decided upon. Charging loads, he said, have concerned manufacturers for some time, and although plugs and receptacles had sufficient capacity they were sometimes caused to heat by the use of too small a wire size. He expressed the wish that with the larger plugs adequate wire sizes would be used.

G. T. Johnson, assistant electrical engineer, New York, New Haven & Hartford, said that the present tendency was towards 60 volts for air-conditioned cars and that with this voltage 150-ampere plugs would be adequate. Mr. Ross added that the plug diameter is not increased and extra capacity is obtained by having longer contacts. The 220 stand-by and 440 train line voltage problem, he said, could be easily handled by connecting the train line to the 440-volt motor loads and the stand-by power to the 220-volt loads, thus avoiding any complicated switching.

S. G. Petersen, shop engineer, Seaboard Air Line, asked that someone provide information concerning the Frigidaire drive for air-conditioned cars. A. G. Oehler, editor, *Railway Electrical Engineer*, replied. He gave a short description of the drive and added that a complete article on this subject would be published in the July issue of that magazine.

P. & S. Discussers

If the last Purchases and Stores convention at Atlantic City is any kind of a barometer, this year's convention should lack nothing in the way of discussion. Disregarding remarks by committee chairmen during the presentation of their reports, the record shows that 50 members spoke 204 times from the floor in 1930.

To equal that record this year, somebody will have to substitute for Otto Nelson, Union Pacific, retired, who spoke 13 times; for C. C. Kyle, Northern Pacific, deceased, who spoke 4 times; and for U. K. Hall, Union Pacific, absent, who was on his feet 6 times, but with the principal exception of those "voices" the old guard is fairly intact.

This is about the way the "heavies" lined up: J. U. King (A. C. L.), 10 times; L. F. Duvall (A. C. L.), 9 times; H. H. Laughton (Sou.), 9 times; C. D. Baldwin (Bang. & Aroos.), 9 times; F. D. Reed (C. R. I. & P.), 10 times; C. B. Tobey (L. V.), 23 times; L. C. Thomson (C. N.), 11 times; L. P. Krampf (M. P.), 10 times; E. W. Peterson (Bang. & Aroos.), 5 times; A. W. Munster (B. & M.), 5 times; E. A. Clifford (C. & N. W.), 5 times; A. L. Sorensen (B. & M.), 8 times; and J. C. Kirk (C. R. I. & P.), 10 times; with L. F. Duvall and C. D. Baldwin heading the lineup with the largest number of words spoken. The one-timers included G. E. Scott (M. K. T.), T. M. McKeown (C. P.), C. B. Hall (Penna.), J. W. Hagerty (Penna.), J. J. Kukis (Erie), B. T. Adams (I. C.), and P. Melgaard (C. M. St. P. & P.).

Conventionality . . .

F. E. Williamson, president of the New York Central Lines, was an interested student of the exhibits both on the track and in the Convention Hall yesterday.

William Lane, western sales representative of the Franklin Railway Supply Company, had to leave on a sad errand to Franklin, Pa., where his father died on Sunday.

Samuel Porcher is attending his first convention since his retirement ten years ago as executive officer in charge of purchases for the Pennsylvania.

C. L. Sullivan, Jr., now has a new boss. It happened in April when The Thresher Varnish Company, of which he was and still is president, was purchased by the Pittsburgh Plate Glass Company, presumably to make bigger and better varnishes.

Frank Parker, president of the Iron and Steel Products Company, is an optometrist. The demand for used car and locomotive parts has been so good that he has acquired a 27-acre site in Hegewisch, near Chicago, to handle the business.

Friends of J. J. Edwards, vice-president of The O. M. Edwards Company, are glad to see him at the exhibit after his recent long illness. He arrived with his father, O. M. Edwards, noted for his long record of convention attendance.

President David A. Crawford, The Pullman Company, accompanied by Hale Holden, Jr., was an interested visitor at the exhibit last Saturday. Mr. Crawford spent the better part of the day in the Auditorium and at the track exhibit. His comments were most favorable.

J. E. Conroy, district storekeeper on the Chicago & Northwestern at Missouri Valley, Ia., is out gunning for rivals. He has a record of 52 years of service on that road, and, by the way, his boss, W. L. Wheeler, assistant general storekeeper, who also arrived Sunday for the convention, has the distinction of entering railway service from the general business field. He once owned and managed a general merchandise store in Chicago.

Peace-Maker

Dr. Ernst Bernheim, now in New York representing Friedman, of Vienna, Austria, is almost certainly the only one present at the convention who was a member of the Armistice Commission following the World War.

From Old Mexico

M. J. Macias, formerly general superintendent of the National Railways of Mexico, and who now represents several manufacturers in Mexico City, is to be found at the Lima Locomotive booth.

From Far Off China

C. S. Chang, Hankow manager of the Chinese Engineering & Development Company, which firm represents practically all the railway supply manufacturers doing business in China, is a visitor at the convention. Mr. Chang is a graduate of Purdue.

Going Abroad

The ever-young J. W. Fogg, of the MacLean-Fogg Lock Nut Company, is sailing from Montreal on June 26 on the Empress of Britain for a tour of "furrin parts." He will be accompanied by his daughter, Betty.

Champions All

Early risers may have noticed the striking couple riding a tandem bicycle up and down the boardwalk. Well, that was Mr. and Mrs. Jim Shafer of the National Malleable & Steel Castings Company, who claim the boardwalk championship in tandems.

Another champion in the same company is Frank Moffett, who specializes in slogans. His latest effort is: "Eat more bananas so that more banana cars will have to be built." Still another champion is George Wilhelmy, who excels in reciting poetry, particularly that splendid effort: "Barbara Fritchie."

T. P. A. President Here

R. R. Wheeler of the International Nickel Company is also president of The Technical Publicity Association of New York, the oldest industrial advertising association in this country if not in the world.

Son Graduates from Dartmouth

A. E. Pratt, eastern transportation sales manager of the Finishes Division of E. I. duPont deNemours & Co., hurried to the convention from Hanover, N. H., after attending the graduation of his son from Dartmouth College.

Send Him a Card

F. D. Reed, purchasing agent, Chicago, Rock Island & Pacific, past chairman and one of the stalwarts of the P. & S. Division for years, was prevented from attending by illness and would appreciate hearing from his friends.

Banker Here

Gilbert A. Kahn, son of the late Otto H. Kahn, and a partner in Kuhn, Loeb & Company, is attending his first railroad convention here as the guest of L. L. Cohen, president of the Union Asbestos & Rubber Company. Mr. Cohen, by the way, has just returned from an extensive tour of South America.

President Present

George A. Nicol, Jr., of the Geo. A. Nicol Corporation, is one of the only two supply men present who are presidents of country clubs. George directs the destinies of the Wykakyl Golf Club, and is also past president of the Metropolitan Golf Association.

Grand Old Man Gone

An institution at the Buffalo Brake Beam Company booth is missing this year. Seth A. Crone, president of that company until his death last fall, was president of the Master Car Builders' Association from 1897 to 1899, and for more than 40 years devoted much time and attention to the M.C.B.

Dramatic Note

"Royal" Charles O'Boyle's bubbling enthusiasm is divided at the moment between the convention and his charming daughter, Nancy, who is this week opening the summer stock season, playing with Mrs. Patrick Campbell. Mr. O'Boyle is president of the Royal Railway Improvements Corporation.

Winchellism

A romantic note to the convention is supplied by the young couple consisting of Mary Elizabeth Callison, daughter of the late W. A. Callison, former superintendent motive power of the Monon, and Bill Green, brother of George Green of the Union Asbestos & Rubber Company.

Large Responsibilities

Charlie Gill has seen more than the usual amount of excitement during the past year. His promotion to general manager of the Reading was the occasion of a big dinner in his honor at Reading. Only a short time later he was elected to the presidency of the New York Railroad Club, and since that time he has been putting a lot of energy into enlarging the club and pro-

motoring a greater interest in its various activities. It is true that he will have a hard task in keeping up the pace set by his predecessor, Charlie Smith, vice-president of the New Haven, but he is working hard to establish a new record.

Life Member in P. & S.

Harry T. Shanks, retired general purchasing agent of the Louisville & Nashville, was elected yesterday to a life membership in the P. & S. division. Mr. Shanks was a member of the first purchasing agents' organization, formed more than 50 years ago.

Co-Incidence

L. C. Thomson, manager of stores, Canadian National, past chairman of the P. & S. Division, began stores work in 1897. By a peculiar co-incidence, he now has 1,897 employees working for him in his far-flung territory, which requires between 25,000 and 50,000 miles of traveling a year to cover.

Harris Abroad

R. C. Harris, general storekeeper, Pennsylvania, will not be at the Purchaser and Stores convention this year, as he sailed on May 19 for a six weeks' tour of European research laboratories, with a group of industrial executives and bankers. The tour was sponsored by the National Research Council.

Handy Andies

The record fails to disclose how straight L. L. Studer, district storekeeper, Missouri Pacific, can drive a nail, but he has no apology for his four sons. The oldest one is already an expert patternmaker, the second an electrician and the two younger boys are running true to form.

Proud Grand-dads

Burton Mudge and Eugene Rickey are the proud joint grandfathers of Miss Barbara Jean Mudge. This extremely young lady is the baby daughter of Burton, Jr., and the former Virjean Rickey, both of her parents having been practically raised at these conventions, coming here several times, beginning when they weren't much older than their small daughter is now.

A Mule Skinner

As a mule Skinner, W. F. Hebard, president of W. F. Hebard Company, challenges all comers. He has been selling mules for years and has just added another string of mules to his drove. Like the army mule, Hegard's mules have no hope of posterity. That is because the are "shop mules" sired in the factories of the International Harvester Company.

Makes High Speed Possible

George A. Blackmore with Mrs. Blackmore is attending the convention for the first time in his official capacity as president of the Westinghouse Air Brake Company. Mr. Blackmore has been prominent and active for years in the railway signal field through his association for over 40 years with the Union Switch & Signal Company, of which he is also President.

Plenty of Brains

Intelligence seems to run in families. A. G. Follette, general material supervisor, Pennsylvania, who has been carrying the heavy end of the Purchases and Stores Division's work in simplification for years, holds a degree of bachelor of philosophy from Yale, while his daughter Clara is one of the country's outstanding authorities on literature for children.

Dave is Sure Busy

The irrepressible Dave Pye, of Tuco Products, continues to have a lively time stimulating the activities of the New York and the Central Railway Clubs. We often wonder how much

time he spends commuting back and forth between Buffalo and New York, but one thing is dead sure, and that is, the officers of the Central Club are keenly appreciative of his tireless efforts to assist them in their programs, even though he is head over heels in details as secretary-treasurer of the New York Club.

An Artistic Storekeeper

It is a deep, dark secret but now it can be told. Clyde L. Wakeman, general storekeeper of the Wabash and Ann Arbor, studied at the Beaux Arts Academy in Paris, France. We haven't tested him out, but, with this experience and his tenure of service at Verdum and in the Argonne, he might qualify as the best *parlez-vous* artist at the convention.

Westward Ho?

L. B. Wood, general storekeeper, Texas & New Orleans, maintains that, what with his railroad duties, his service as a member of the General Committee of the P. & S. Division since 1931, and the cares attendant upon the raising of his fine family of three boys and two girls, he has no time for a hobby. Correction, please, Mr. Wood. His present hobby is advocating that all railroad conventions be held in San Francisco in 1939, at the time of the big fair there.

Keeping Up with the Styles

The marked trend toward the increasing use of bright and pleasing colors in passenger equipment and the keen interest of fabric manufacturers in furnishing materials of the proper shades caused Duncan Ferguson and his two aides, Ed. Sensmuth and Earl Jacobson, to visit the exhibit and convention. Mr. Ferguson is the manager of the largest plush mill in the world, Shelton Looms of Shelton, Conn.

A Cow Puncher

The secret of "Con." Hopkins' success as a salesman is out. He is not really a "con" man but he knows bronchos, having punched cows on a cattle ranch in California, and "Con" has also learned to play ball, having once been good enough at the game to get an offer to join up with the Pacific Coast League. He played his golf too and has several records in that line, but much to his chagrin, he has never qualified for the "hole in one" club.

Another Chief Executive

One of the important railway executive officers who have visited the exhibit and that was not mentioned in the list of them given in the *Daily* on Monday morning was Angus McDonald, president of the Southern Pacific system. He spent two days here last week, being piloted about the Auditorium by George McCormick, superintendent of motive power of the Southern Pacific. The Southern Pacific is farthest west from Atlantic City, but it is always well represented at the conventions.

Railways vs. Waterways

Henry F. Gilg is strongly opposed to the proposed canal from the St. Lawrence to Albany. His ire was aroused by a statement of a proponent of this waterway to the effect that 8 to 12 cents per bushel, as well as much time, could be saved by this new water route. What are the facts? According to Mr. Gilg, the all-water freight rate by way of the Welland Canal is 12½ cents per bushel, and by the New York Barge Canal it is 12.6 cents per bushel. Under these conditions, how in the world can a saving be made of 8 to 12 cents per bushel?

Four Harrys

It is doubtful if among its leaders any company of the size of the Frost Railway Supply Company of Detroit, can boast of quite as many men whose first name is Harry. Harry W. Frost, Sr., has been coming to conventions as long as the oldest of us can remember. He is dean of Past-Presidents of the R.S.M.A., having served in that capacity in 1900-01. His son,

Harry W. Frost, Jr., is following in his father's footsteps. The secretary-treasurer of the company is Harry Smith, and one of the latest additions to the organization is Harry E. Passmore, eastern representative, who also has a long record of convention attendance.

Burlington P. A. Smiles

Wherever heresy is committed when a railway purchasing agent so breaks out in public smiling, R. D. Long, purchasing agent of the Burlington has laid himself open to it by wearing a smile around the convention as wide as the boardwalk. And, no wonder! It's a grandson! The score now stands: One son, two daughters, three grandchildren. The new purchasing agent of the Burlington has also received his first set of golf clubs.

His Racket is Tennis

In addition to being active in Y. M. C. A. work, we'll lay a small bet that W. J. Sidey, supervisor of scrap and reclamation, Lehigh Valley, belongs to more chess and tennis organizations than any other member. Mr. Sidey has been a lifelong sport fan and participant, and, while he disclaims ever having won any championships, he has a young son growing up for whom he has high hopes.

A Union Leaguer

It was inevitable that the genial C. R. Painter, purchasing agent of the New York, New Haven & Hartford, should be a popular club member. In addition to his fraternal orders, Charlie is vice-president of the Union League Club, and a member of the Civitan Club, the New York Railroad Club, the New England Railroad Club, the New Haven Railroad Club, and the Race Brook Country Club.

Service Stripes

G. E. Scott, purchasing agent, Missouri-Kansas-Texas, once had his friends believing that he couldn't make a speech, but that was before he so ably explained the functions of the purchasing department before the Western Railway Club last fall. A veteran of the General Committee, on which he has served since 1920, Mr. Scott also carries three service stripes for his chairmanship of the P. & S. Division through the three bad years, 1932-1935.

Hall and Woods Missed

As a result of a long battle with unruly teeth, U. K. Hall, general purchasing agent, Union Pacific, and a past-chairman of the P. and S. Division, will not grace the boardwalk with his presence this year. J. L. Woods, purchasing agent, Nashville, Chattanooga & St. Louis, is also among those absent, due to not feeling up to par. This is the first miss for both these members in many, many years.

Anchor Men

Perhaps the largest storekeeper in attendance at the convention is J. S. (Stone Mountain) Genther, general storekeeper of the Lehigh & New England. His only possible rival is J. C. Irish, the ex-cop, who hails from the Union Pacific. Special reinforcements have been added under the boardwalk to take care of the possible eventuality of Messrs. Genther and Irish taking a stroll together, and being joined by Joe Sinkler and J. E. Buckingham, anchor men of the supply trade, who can better 260 lb. on the scales despite their recent reducing exercises.

Beg Your Pardon

The *Daily* offers apologies to all whose names may be misspelled in its columns. Most of its news and conventionality items are written in haste by hand and there are members of our staff—some of them highly placed—whose handwriting looks like Chinese. Especial apologies are made to A. L. Gustin of Gustin-Bacon whose name was spelled G-u-e-s-t-e-n twice in

Monday's Daily and whose company's name was spelled Gusten B-e-a-c-o-n in the same issue. If both ends of the company's name don't get spelled right in this item, we will give up.

He Knows His Sponges

When is a sponge not a sponge?, is a question, the fine points of which we defer to A. D. Daniels, Jr., president of the West Disinfecting Company, who now includes in his repertoire of lectures, a lesson on what a railroad man should know about E. I. DuPonts de Nemours & Co., latest product. "These sponges," he maintains, "are sponges even if they did come from a powder factory instead of the bottom of the sea. They are cellulose.

A Customers' Man

Lester M. Jones, assistant passenger traffic manager, Chicago, Milwaukee, St. Paul & Pacific, who, by the way, is a recent past-president of the Kiwanis Club of Chicago, is probably the only man in the attendance at the Purchases and Stores Convention who specializes on the railways' customers. But, that is because he has until recently been superintendent of sleeping and dining cars for the Milwaukee, and has, since 1929, worked with the Division's committee on commissary supplies.

Golf Pro?

It behooves everyone to be careful in arranging handicaps when playing golf with J. C. Kirk, assistant general storekeeper, Chicago, Rock Island & Pacific. Not only has he been president of the Short Hills Country Club back in Silvis, Ill., but he has several cups on the family mantle to prove his prowess as a master of the mashie. Not only that, but he has competent and unassailable proof of his feat of making two holes in one, the first in 1934 and the second in 1936. He expects to make it three in 1938, just to keep up the record of even years.

Down from the North

C. D. Baldwin, purchasing agent, Bangor & Aroostook, comes from farther north in the U. S. than any other member, but he is not unfamiliar with other sections of the country than the state of Maine. He was purchasing agent for the United Railroads of San Francisco for four years. In addition to being a past president of the New England Railway Club, Mr. Baldwin is a member of the board of foreign missions of the Methodist Episcopal church, and has been a delegate to the last four general conferences of the M. E. church.

Hole-in-Oners

C. L. Mellor, vice-president of Barco Manufacturing Company, also belongs to the hole-in-one club, having dropped a 218 yd. drive in one count; in 1936 he won the Class B Championship of the North Shore Club in Chicago. Floyd Mays, general superintendent motive power of the Illinois Central and D. C. Curtiss, chief purchasing officer of the Milwaukee are also "hole-in-oners", but the honors go to Walter C. Doering, vice-president, American Steel Foundries, for making one when the ball hit a tree to one side of the green, then hit another tree and then glanced to the green and on into the cup on the Algonquin course in St. Louis, Mo.

One of the Higher-Ups

Coming down to Atlantic City from an elevation of exactly 5,285 ft. at Denver, Colo., with the Continental Divide always in sight, W. B. Hall, purchasing agent, Denver & Rio Grande Western, might be described as one of the highest officers attending the convention. The son of a mining superintendent who was one of the pioneers out West, "Billy" Hall is something of a miner himself, but, with the way business is now rolling on the Rio Grande, his time is more largely taken up with car loads than mother lodes.

No More Shingles

A. S. McKelligan, general storekeeper, Southern Pacific, is attending this year's Purchases and Stores Convention under

considerably less of a strain than his Atlantic City convention in 1928. At that time, he was not only chairman of the Division, but braved a case of shingles until it sent him home in an ambulance. Mr. McKelligan and his railroad will long be remembered as the host of the convention in San Francisco in 1929. Storehouses under his control range from 5 ft. above sea level to 4,910 ft. above sea level and his motorized equipment includes 35 tractors and lift trucks, 51 trucks and 19 locomotive cranes with magnet.

A Clubman—And Then Some

M. E. ("Mike") Towner, general purchasing agent, Western Maryland, certainly merits the designation of prominent clubman. Among the clubs and organizations to which he belongs are the following: Kiwanis Club, Sons of the American Revolution, Masonic, Maryland General Hospital Board, Maryland Sportsmen's Luncheon Club, Maryland Outdoor Life Federation, board of control of the Baltimore Safety Council, Gibson Island Club, and chairman of the civilian board of the Salvation Army for the Maryland area; and, if you don't think he is a sportsman, have him tell you about his shark and barracuda catch off Key West last year. The count was only 34.

Mr. Chairman—Mr. President

C. B. Tobey, general storekeeper of the Lehigh Valley, has probably been addressed by the above appellations oftener than anyone else at the Purchasers and Stores convention. Besides being chairman of the division in 1935-36, and chairman of the eastern stores group in 1936-37, he was a committee chairman for several years. In addition, he is president of the Rotary Club of Sayre, Pa., president of the Free Library at Waverly, N. Y., president of the Waverly Garden Club, and president of the Tioga Hose Company. While we're about it, we might mention the fact that, in his golfing career, Mr. Tobey has made two holes in one, and, moreover, has trophies and attested scorecards to prove it.

Unbelievable, Yet True

"One chance in a million" and "stranger than fiction" are commonplace expressions. Yet—well, here's the truthful story about Harry Dreibuss who lost his convention badge. (Harry is chief mechanical engineer of the Scullin Steel Company, St. Louis.) The lost badge number was 6810; another badge was issued. Two days later, and at night at that, two other Scullin representatives saw the bright metal edge of some object sticking through a crack in the boardwalk. It was the missing badge, but—get the best part of the story: The finder was R. C. Geekie of the Scullin Company whose own badge number is 6811, the very next number to the lost badge number.

Level-Headed Business Man

George H. Houston, president of the Baldwin Locomotive Works, is one of the ablest and soundest economists among business men in the country and has been a leader in opposing policies of the New Deal that he has considered inimical to the durable goods industries, of which manufacturing for railways is one of the largest. It was due to views courageously expressed by him that the Durable Goods Industries Committee was formed under the unlamented N.R.A., and he became its first chairman. He is a forceful advocate of business uniting on a platform of sound economic principles and government policies and then developing the means of simply and effectively presenting these policies to the entire public.

Championing the Railway Cause

Harry A. Wheeler, president of the Railway Business Association, arrived yesterday. Mr. Wheeler's recent address at the annual meeting of the United States Chamber of Commerce has attracted widespread attention because of his emphasis on the fact that the absence of some important industrial and financial elements from the organization results in the business of the country having no national organization that can speak for business as a whole. Mr. Wheeler was the first president of the

U. S. Chamber of Commerce. Its recent referendum in which a majority of its members voted against the Pettengill bill to repeal the long-and-short haul provision of the Interstate Commerce Act has not endeared it to the railway and railway supply fraternities.

A Supply Man's Heaven

After being down in my exhibit in the basement (lower level, if you please, by request of Secretary Conway) I went up and out on the boardwalk to get a breath of air. I remember sitting down in one of the iron seats, then subsequent proceedings interested me no more. I had fallen asleep.

I dreamed that the whole convention-exhibit was just reversed in its set up. All of the Class 1 railways had taken over the exhibits, had put their various department heads in charge, had charts showing their requirements for the coming year and announced to the hundreds of railway supply men present the new order of things.

At the close of the day the railways gave a big dinner and presented to each supply man a yearly contract for his wares, as well as for transportation for a year.

At this point some one pushed me and my chair into the ocean.

Then He Missed His Putt

Last Sunday, William L. Batt, president of S.K.F.; A. L. Ralston, general mechanical superintendent of the New Haven, and W. H. Winterrowd, vice-president, Franklin Railway Supply Company, chose to match their golf skill at Pine Valley, one of the most difficult courses in the world on which to get a satisfactory medal score. At the thirteenth hole, 175 yards, Mr. Batt placed his drive just off the bank into about three inches of water. Without hesitation off came one shoe and sock and with one foot in the water and the other on the bank that ball was blasted to within a yard of the pin—and then he missed his putt and par. The coincidence is that Mr. Batt saw Scotty Campbell, who was playing in the Walker Cup matches at Pine Valley last year, execute that same shot from the same spot. We did not learn whether "Scotty" also missed his putt.

Car Men to Meet This Fall

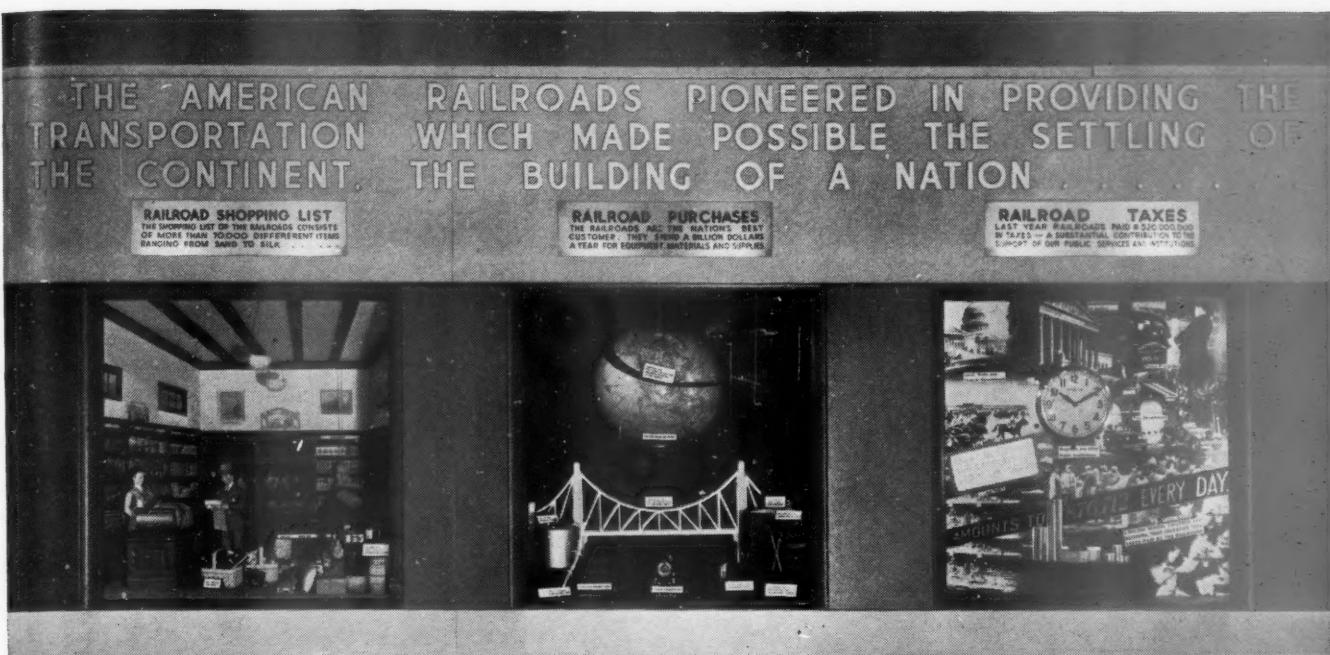
K. F. Nystrom, superintendent car department, Chicago, Milwaukee, St. Paul and Pacific, is an attendant at the convention with a goodly contingent of Milwaukee car men, which proves that their "boss" has caught a vision of the possibilities of this convention and exhibition and intends to extract the maximum benefit from the "most comprehensive and informative display of railway equipment and supplies which has ever been assembled."

Incidentally, Mr. Nystrom, who is president of the Car Department Officers' Association, says that definite steps are being taken to hold an annual meeting of this association at Chicago in the Fall (September 21-22) with a program of outstanding interest and helpfulness to car men. The subjects presented will relate exclusively to details of car department operation having a bearing on the more effective and efficient inspection, maintenance and use of railway car equipment.

The Ladies Again

Some of these days we'll learn not to discuss the ladies. They always prove us wrong sooner or later, but, anyway, here is some more news of the fair sex who are here on business. We have a lady president among us, in the charming Mrs. Wm. R. Gallatly, who, on June 1, was elected president of the Superior Railway Products Corporation. Mrs. Gallatly is by no means a stranger to these conventions. As a small girl in pigtails, not so very many years ago, she was present at the Standard Steel Car Company booth "helping papa" and passing out booklets. Her father was the late John N. Hansen, president of the Standard Company at the time.

Besides which, any number of gallant knights have jostled with us over our statement that Miss Dennis was the only woman engineer attending the convention. It appears that Ruth V. Wingfield, who is here with the Budd delegation, is a graduate engineer of the University of California, where she majored in chemistry, and she now serves as technical librarian for the Budd company.



The Left Panel Shows the Railroad Shopping List, Railroad Purchases and the Varied Uses to Which Railroad Taxes Are Put

Giving the Public the Facts

The R.B.A.—A.A.R. joint exhibit is an outstanding example of efficient public relations work

PORTRAYING vividly and graphically the salient facts that the public should know about railroads, the joint exhibit of the Railway Business Association and the American Association of Railroads should be studied carefully by every railway and supply man present at the convention who is interested in the progress of the industry. This exhibit consists of a pictorial illustration of railroading and its importance to the community, in the form of a panel 40 ft. long by 10½ ft. high, containing one central showcase 8 ft. deep, which is flanked by six smaller showcases, three on each side. A streamer legend, across the top of the panel, reads as follows:

"The American railroads pioneered in providing the transportation which made possible the settling of the continent, the building of a nation. Pioneering still goes on, as the American railroads continue their constant progress in improving the world's safest, most dependable, most economical transportation."

The showcases or panels are shown in the illustrations and their detailed description is given in the following paragraphs.

The Railroad Shopping List

Under the caption: "The railroad shopping list consists of more than 70,000 different items ranging from sand to silk," a model grocery store is shown, with the railway purchasing agent buying a market basket full of commissary supplies, and a legend reading: "\$17,000,000 last year for commissary supplies," and a coal scuttle labelled: "25 per cent of all coal." Illustrated

by models and paintings throughout the grocery store are the wide variety of different items purchased by the railroads under the head of commissary supplies.

Railroad Purchases

Under the caption: "The railroads are the nation's best customers. They spend a billion dollars a year for equipment, materials and supplies," a pictorial illustration of railway purchases is given by means of models. A globe, encircled by tracks, bears the legend: "America has one-third of all the railroad mileage of the world—421,000 miles of track." A bridge model is labeled: "Railroads buy 20 per cent of the output of the steel mills"; a model tank bears the sign: "19 per cent of the



The Central Panel Shows a Model City, with a Model Railroad in the Foreground



The Right Panel Illustrates Railroad Safety, Railroad Employment and Railroad Progress

nation's fuel oil"; while a model box car, locomotive and passenger car carry the legends, respectively: "1,836,000 freight cars," "46,594 locomotives," and "More than 50,000 passenger cars."

A sign on a coal pile reads: "The railroads coal bill was \$213,000,000 last year," and on a pile of cross ties: "\$41,000,000 for cross ties in 1936—Railways buy and use 20 per cent of the nation's lumber." A gravel hopper bears the legend: "\$11,000,000 last year for ballast."

Railroad Taxes

The railroad tax situation is portrayed on a photographic mural indicating the varied uses to which taxes paid by the railways are put, which includes a sign reading: "1,600,000 school children are receiving their education through taxes paid by the railroads." This mural is under the caption: "Last year the railroads paid \$320,000,000 in taxes—a substantial contribution to the support of our public services and institutions." In the center is a clock, and, every ten seconds a model pile of money is outlined in a flashing light which also illuminates a sign reading: "Every ten seconds, railways must pay \$101.47 in taxes—This amounts to \$876,712 every day."

Central Panel

This panel consists of a complete model city, with an elaborately equipped three-track railway in the foreground, with stations, signals, crossing gates, etc., along which a passenger and two freight trains are operated at frequent intervals. A traveling electric sign above the panel reads as follows: "This exhibit is designed as a tribute of the Railway Business Association to the American railroads—to the millions of men and women who built and developed the nation's rail carriers, and to those who today manage and operate the greatest, safest, most efficient and economical transportation system in the world."

Railroad Safety

Under the captions: "The railroads pioneered in the Safety First movement and today provide the safest form

of transportation in the world," and "In 1935, the railroads carried 446 million people a total distance of 18 billion miles with only one passenger fatality due to train accident," a model Pullman car is shown. This car contains several sections, filled with model passengers, and showing the uses to which each type of accommodation is put, by means of alternately lighting the interior of each section. This car bears the legend: "Not a single Pullman passenger fatality due to a train accident in 1935, 1936 or 1937."

Railroad Employment

This showcase shows a vast multitude of people approaching and entering railroad shops and offices, and is captioned: "The railroads employ 1,100,000 men and women, whose wages of almost two billion dollars a year stimulate local business everywhere."

Railroad Progress

This showcase is captioned: "Continuous story of research in materials, appliances and methods, of investment in plant and equipment to make railroad service better." It consists of a stage with a drop curtain that shows ten successive and different stage settings, at frequent intervals between the rising and falling of the curtain. These stage settings show the following:

Development in track and road bed—two contrasting model panels, one showing modern track, with heavy rail, rock ballast and ballast toe line, the other light rail, with ragged, insufficient ballast.

Development in signals—the old and new in signaling portrayed in contrasting panels, with a model signal bridge built perfectly to scale and complete in every detail—supplied by the Union Switch & Signal Company.

Grade crossing protection—models of a typical grade crossing showing modern crossing protection devices, including gates, flashing lights and bells—all in operation.

Locomotives—models showing the old and new and labeled: "The contrast of a few short years."

Streamlining the Iron Horse—Mounted photographs showing modern types of streamlined locomotives.

The Diesel-powered fleet—cut-outs showing the vari-

ous high-speed Diesel trains operating in various parts of the country.

Today and Yesterday—Box car and coach models showing the contrast between the old and new.

Air conditioning—A train leaving a station, with thermometers on each side contrasting the outside and inside temperatures and bearing the legend "Air conditioning brought new luxury to rail travel."

Two model box cars with sides cut-out and filled with model samples of merchandise packages, one showing the proper loading and stowing methods, the other the improper methods, and bearing the legend: "Modern methods in package loading and handling merchandise have wrought a miracle in the prevention of loss and damage from which everybody gains."

Sperry detector car model, with the legend: "The Sperry detector car—a modern marvel which searches with electric fingers for defects hidden in steel rails, records their position when found, and marks the spot with a splash of paint."

Exhibit to Travel

All of the exhibits are mounted on a solid base equipped with casters, so that they may be rolled out of the panels intact, without the tedious labor of mounting and unmounting them. They are then packed in boxes specially built to size for the purpose. After the show here, this co-operative enterprise of the R.B.A. and the A.A.R. will be taken to various key cities throughout the country and exhibited to the public. Its movement and color should bring the same large crowds everywhere that are visiting it at this convention.

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Blizzard, Chas. S., Loco. Eng., C. of N. J.
 Bluffstone, Nathan, U. S. Patent Dept.
 Boyer, Chas. E., Gen. Car Insp. (Ret.), Penna., Runnymede
 Brown, Lawrence M., U. S. Patent Dept.
 Bryant, Edward B., Fore. (Ret.), D. L. & W., Empire
 Bunting, Clarence, Leverman, Penna.
 Burchinal, H. B., Gen. Psgr. Agt., Pa.-Reading Seashore
 Cannon, John, Act. Mgr., Pullman Co., Madison
 Caples, M. H., Asst. Pow. Dir., Penna.
 Carberry, Thomas F., Pensioned Fuel Insp., M. P., Lexington
 Carpenter, J. M., Special Appr., Penna.
 Carroll, C. H., Asst. V. P., Western Union, Marlborough-Blenheim
 Chandler, R., Union Tank, Traymore
 Clean, Wm., Civil Eng., Penna., St. Thomas
 Clements, C. A., Asst. Gen. Mgr., Mo. Pac., Traymore
 Darris, E. L., Adv. Dept., C. & O., Penn-Atlantic
 Dattner, Joseph E., Fore. Frt. Car Rep., Reading
 Davidson, Edward H., Insp., I. C. C., Madison
 Davies, Chas. E., Asst. to V. P., W. U. Tel. Co., Marlborough-Blenheim
 DeCamp, John H., Pipe Fitter, C. R. R. of N. J.
 Doulin, W. M., Rtd. Treas., P. & L. E., Dennis
 Dyke, Samuel C., Oper. Cl., Reading, Alden Park Manor, Ocean City
 Eddy, Roy, Machinist, D. L. & W., Penna.
 Edelman, Karl B., Machinist, L. V.
 Edmonds, C. G., Spec. Insp., B. & O., Jefferson
 Edwards, W. Louis, Ch. Clerk, Phila. Rapid Trans. Co.
 Evans, L. D., Elect. Insp., Penna.
 Faris, W. A., Shop Insp., N. & W.
 Fennessy, Robert J., G. F., P. R. T. Co., Elev. Div.
 Fessler, John W., Welder, Penna.
 Foley, Joseph, Draftsman, Penna.
 Forner, Curtis W., Machinist, C. of N. J.
 Freeman, E. H., Asst. Ch. Cl., B. & O., Madison
 French, Geo. L. R., V. P., Rutland, Traymore
 Garrison, R. B., Capt. Police, Pa.-Reading Seashore
 Gerard, C. M., Supt. Shops, Pa.-Reading Seashore
 Gleeson, Roland, Gen. Agt., Universal Carloading & D. Co.
 Goldstrom, G. E., Draftsman, P. & W. V., Shelburne
 Grist, O. G., Move. Dir., Penna.
 Gruber, Alexander, A. B. Mech., I. R. T.
 Gwyn, L. R., Jr., Eng. Automotive Dept., Ry. Exp. Agcy., Ambassador
 Hamilton, W. H., Supt. Roadway & Struct., Montour
 Hammond, A. W., Pipe Fitter, Penna.
 Hangstler, John, Fore. of Welders, Penna.
 Heiland, E. B., Boiler Insp., I. C., Arlington
 Hermann, F. E., A. B. Repairman, Penna.
 Heskett, J. J., Machinist (Ret.), B. & O., Glaslyn-Chatham
 Hess, Harold S., Trav. Frt. Agt., Universal C. & D. Co.
 High, Geo. W., Foreman, C. B. & O., Shelburne
 Jaekle, A. E., Draftsman, N. Y. C., Traymore
 Johnson, C. C., Gang Fore., Penna.
 Justus, I. J., Pensioned Spec. Insp., N. Y. C., Morton
 Kantola, C. F., Draftsman, N. Y. C., Traymore
 Kent, Thomas, Gang Fore., Penna.
 Kidney, E. A., Ch. Cl. M. P., Penna., Dennis
 Klick, Raymond P., Steel Coach Rep., Reading
 Kuhler, Otto, Consulting Eng., B. & O.
 Kuhn, S. S., Track Fore., Penna., Glen Gables
 Lenich, C. R., Fore., Reading, Jackson
 Litty, J. H., Supvr. Agt., P. R. S. L.
 Lloyd, A. W., Traf. Rep., W. & L. E.
 Lonergan, L. E., R. H. Fore., Sou. Pac., Colton Manor
 Loomis, Fred M., Inspector, D. & R. G. W.
 Marmorstein, Harry, Machinist, C. of N. J.
 Mackissic, J. F., Engineman, Pa.-Reading Seashore
 May, O. D., C. F., Indianapolis Union, Traymore
 McAuliffe, J. W., Clerk, Penna., Traymore
 McCluray, Samuel, Fore. Frt. & Psgr. Shops, Central Vt., Morton
 McDonell, H. G. F., P. R. T., Market St. Elev. Shop
 McGee, L. R., Asst. R. H. F., Penna.
 McLaughlin, Milton P., Loco. Insp. (Ret.), B. & M., Seaside
 Merrill, F. A., Trav. Car Repair Acct., B. & O., De Ville
 Miller, J. R., Ch. Cl. to Supt. Shop, B. & O., Flanders
 Moffatt, W. C., Gen. Stkpr., Hudson Coal Co., Ambassador
 Muldoon, J. I., Gang Fore., Car Dept., Penna.
 Nelson, W. G., Jr., Sec. to Gen. Counsel, N. & W.
 Nichols, S. A., Train Master, Penna.
 Noll, D. F., Draftsman, Penna.
 Oettle, G. S., Pensioner, South American Railways
 O'Toole, Wm. A., Machinist, Monongahela Conn., Strat-Haven
 Pack, A. G., Rtd. Ch. Insp. Locos., I. C. C., Marlborough
 Pearse, John F., U. S. Patent Office
 Porcher, Samuel, Former Asst. Eng. Mot. Pow., Penna.
 Pratt, L. S., Ch. Car Draftsman, N. & W.
 Ramsey, Dennis W., Special Appr., Penna.
 Rapp, Charles L., Jr., Fore. Elect., Penna.
 Reagen, Jas. P., Fore. Pipe Fitter, Reading, Milner
 Reinhardt, E. J., Weld. Supvr., L. V., President
 Root, Jos. J., Jr., Asst. to Vice Pres., U. T. C., Traymore
 Rose, B. E., Fore., D. L. & W., Haddon Hall
 Ruskaup, W. H., Jr., Spec. Appr., N. Y. C., Madison
 Sanfills, Joseph H., A. B. Insp., Reading
 Saperstein, S., Primary Examiner, U. S. Pat. Off., 7907 Atlantic Ave.
 Scheer, E. W., Pres., Reading
 Sechrist, W. H., Asst. Mgr. Ins. Dept., Penna.
 Seery, Jacob, Engineman, Reading
 Shoemaker, P. M., Supt. of Frt. Trans., N. Y. N. H. & H.
 Simeone, N. J., Train Ltg. Insp., Penna.
 Smith, L. R., Stockman, Penna., Malatesta
 Somborn, Chas. A., Draftsman, N. Y. C., Traymore
 Sparrow, H. A., Trav. Car Rep. Account., B. & O.
 Speakman, J. W., Frt. Rep., Penna.
 Stains, Arthur O., Supvr. Clearances, Penna.
 Sullivan, C. J., Insp., I. C. C., Madison
 Sunderland, C. W., Office Mgr. Ins. Dept., Penna.
 Swanson, Walter G., V. P. & G. M., S. F. Conv. & Tour. Bu., Ambassador
 Tingley, F. S., Patent Atty., A. A. R., St. Clare
 Troutman, J. M., Tele. Agt., Reading
 Turpin, Linwood, A. B. Insp., Penn. & Reading, 206 Suffolk Ave.
 Watkins, Thomas, M. M. Ret., Reading
 Whamond, A. D., Draftsman, Penna.
 White, K. C., Tel. & Tel. Eng., Penna.
 Williams, A. R. H. Fore., Erie
 Wiltz, Whitmore A., U. S. Govt. Pat. Off.
 Young, Herbert E., Sr., Boiler Insp., Reading, Elberon

Special Guests

Adler, P. A., Asst. Fore., Penna., Jefferson
 Ahlers, A. L., Special Appr., Penna.
 Allen, John F., Machinist, C. of N. J.
 Babbitt, T. G., Asst. Traf. Mgr., Beaver Valley, Haddon Hall
 Bair, H. W., Loco. Preparer, Pa.-Reading Seashore
 Baldwin, Herbert L., Pub. Mgr., B. & M.
 Bartsch, Wm., Ass't. Gen. Ydmstr., Minn. Tran., Haddon Hall
 Beith, A., Asst. For., P. R. S. L., Penn-Atlantic
 Berna, Tell, G. M., National Mach. Tool Bldrs. Assn.
 Bishop, Belmont W., Adv. Agt., B. & M.
 Blatt, R. J., Elect. Dept., Reading



Car Wrecking Yard of the Milwaukee at Dubuque, Ia.

Railway Supply Officers Convene for Annual Meeting

Co-ordination with other departments for results keynote of opening session yesterday—Hear contest winners

RESULTS—not methods—and co-ordination with other departments for the protection and advancement of railway transportation were stressed by C. D. Young, vice-president, purchases, stores and insurance, Pennsylvania, and a past chairman of the Purchases and Stores division, A. A. R., in an address opening the annual meeting of that division in Atlantic City yesterday. The meeting, which was presided over by E. A. Clifford, general purchasing agent, Chicago & North Western, was attended by approximately 300

officers of the purchases and stores departments of many railroads, and also included an address from J. M. Symes, vice-president, operation and maintenance, A. A. R., as well as from the chairman.

The committee reports considered yesterday were those on standard material classification; on the classification, handling and sale of scrap; on general reclamation; and on forest products. The convention also heard the papers of the winners in the annual contest.

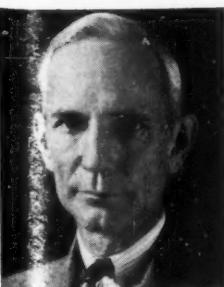
Addresses and reports were in part as follows:

What's Ahead In Supply Work?

Past-chairman of Purchases and Stores Division makes plea for vision and co-ordination in address before meeting

By C. D. Young

Vice-President, Purchases, Stores and Insurance, Pennsylvania


Transportation has for a number of years been passing through a period which progressive industries encounter in making their product attractive to changing demand. It has learned that the traveler or shipper is swayed by the many attractive features of various means of transportation. The buyer is exacting. His decision as to types and routes hinges on what we may consider minor services, yet those minor services swing his patronage.

Railroad transportation is our product and our pride—we believe

in it. As purchasing and stores officers we have a definite place in providing the services which will attract traffic. The work of the Purchasing and Stores Division should be helpful in finding methods for meeting new demands. Our energies should be concentrated upon policies which will materially aid railroad transportation.

Well within the memories of most of us the association which has now become the Purchases and Stores Division of the Association of American Railroads, prepared reports and conducted its discussions from motives substantially different from the present. You will recall the keen competition in those days between individual railroads. The competitive motive actuated practically all departments and most certainly was evident in the work of purchasing and stores departments. That spirit had a very stimulating effect upon the work of the members. Each en-

C. D. Young

deavored to devise methods and secure facilities which would be unquestionably superior to those on other roads. The other fellows' practices were carefully analyzed and severely criticised.

New Conditions—New Objectives

What are the conditions today?

While the keen friendly spirit of competition still exists among railroads, they have united to prevent further inroads into their business of transportation by such competing forces as highways, waterways, airways, and the latest challenge to them—the super highway. It is hoped that we are consolidating our position, because a new advance must be made in which all will move in the same direction without cross currents of unnecessary competition with each other.

As I read signs of the times, we must set an objective. In this case it should be a standard measured by the best efforts the membership of this Division is capable of producing; we must expend our energy to attaining that high purpose. It is not an easy assignment.

How are we to go about it? Probably the first point of approach is the committee where subjects are selected and assigned. It is clear to all of us that the subjects selected should be active ones—a live subject inspires aggressive action and constructive discussions. The value realized from a convention of this kind is limited only by the merits of subjects under consideration and their intelligent exposition. It is not reasonable to expect from committee members the same enthusiasm and energy in studying a subject approaching obsolescence, as in a subject that is active. It appears therefore that the selection and assignment of subjects is the most important activity of the division, in order that the proper foundation may be laid for committee work and beneficial discussion of reports.

Share in Making Roads Attractive

Now what are the types of subjects which should be selected? It is obvious that they must deal first with purchases and stores work until that field has been satisfactorily covered—but the work should not stop there. The job of making railroad transportation attractive to the traveling and shipping public and of building up good will for the railroads is not confined to any one department. No officer or employee of any railroad can escape responsibility in that direction. It has been said that the public frequently judges a corporation by its individual representatives.

Remarks of J. M. Symes

It was my privilege to appear before the Mechanical Division at its opening session last week. At that time I expressed appreciation on behalf of the Association of American Railroads for the wonderful showing that the Railway Supply Manufacturers Association has made possible. To my mind it is the greatest railroad show that has ever been held. It represents perhaps the greatest amount of research work that has been placed on exhibit by any industry during the past seven years.

I want to thank the Purchases and Stores Division for the important part they have played in making this convention a success. I am sure without those gentlemen who control the purse strings of the railroads in attendance, in so far as purchases are concerned, it would not be successful.

You have just heard Colonel Young's constructive address. He has given you a lot of food for thought. He has told you in effect that the success or failure of the Purchases and Stores Division lies largely in your ability to select proper subjects for study and discussion, and that to get the necessary enthusiasm in those studies, new subjects should be selected rather than those that are approaching obsolescence.

I agree with that statement. The railroad industry is an old one. It is more than one hundred years old. During most of that time we have had practically a monopoly in the transportation field. We could wear our old clothes or buy new ones. It

If this be true, then every good impression made, especially when a service might be rendered, is a potential builder of good will.

It is perfectly clear that while purchasing and stores officers and employees of railroads have played their part in accomplishing improvements in service, there is still much to be done in convincing the public, particularly those with whom we come in contact in our daily operations, that we believe in rail transportation as a continuingly useful and necessary service in our economic life, that we are proud of the accomplishments in advancing the art, and that we believe the railroads are alert regarding further possibilities of service to the public just as fast as these can be developed.

This idea of a relationship between the personnel of the purchases and stores departments and the traveling and shipping public is one that may be difficult to visualize, and still more difficult to develop intelligently; but it is one well worth the effort spent in seeking ways and means for its accomplishment.

Purchasing and stores officers will frequently be perplexed because executive policies may be outlined, the interpretation of which will be left to them. They will be told of results to be attained, but the methods for their accomplishment will challenge resourcefulness and ingenuity to reach the expected results in practical and economical ways. These matters will not be beyond our ability to handle, provided the ground work is well laid and our activities intelligently planned.

Watching Investment in Material

From the viewpoint of the executive, materials and supplies of a railroad represent money in the process of being converted into the product a railroad has to offer the public—transportation. If that investment is too large or the cost greater than it should be, the cost of producing transportation becomes excessive and the fault is ours. It is difficult in changing economic conditions to find methods for keeping the investment within suitable limits and to protect expenses; but that is our problem. We know that it cannot be solved by a definite formula. It requires vision, courage, strategy, diplomacy and resourcefulness, mixed in just the right proportion by trained minds.

An intelligent exchange of opinions always produces constructive results, but we do not take home with us the best of our committed work unless we seriously and exhaustively explore the possibilities of the recommendations which have been made; otherwise little has been accomplished but an academic discussion by members of subjects which are of vital importance to our industry.

did not make a whole lot of difference. We had no one to come in and take our traffic away from us.

Today that situation has changed. We must continuously be changing our clothes and continuously studying the kind we will have next year, and the kind we should be wearing five years from now and ten years from now. This involves a tremendous amount of research work and the proper co-ordination of all departments of the carriers. The purchasing agent necessarily plays a very important part in that work. We want to get all of the new clothes we need, but we do not want to pay more for them than we have been accustomed to. If we do it will be but a short time until we won't have any clothes to wear.

That is what we must guard against, and you gentlemen have perhaps more responsibility in avoiding it than do most departments.

The purchasing agent has a more difficult time in showing his accomplishments than do most other railroad officers. The operating officers can show statistical proof as to their accomplishments and efficiency. They can show day by day, month by month, and year by year, the average train speed, the gross miles per train hour, the net tons per train operated, and other measuring sticks that prove rather conclusively whether they are moving forward, backward or remaining stationary. The mechanical officers likewise have various efficiency measuring sticks. So do

most other departments. They not only watch their own performance but compare it with that of their neighbors.

All of these figures are, of course, very desirable and we sometimes like to use them to boast of our accomplishments. The purchasing agents' records might not be so spectacular but the facts are that they are playing a very important part in the accomplishments of all departments.

Wise purchasing and efficiency and intelligent distribution of

materials and supplies after purchase will save the carriers of this country millions of dollars annually. You gentlemen can save the rail carriers that money—or you can waste it.

The Purchases and Stores Division is your division. It is a place for you to go with your problems and find out how your neighbors are solving similar ones. If the problem has not been solved, then it makes an excellent subject for your committees to study and find the answer to.

Address by Chairman Clifford

In welcoming you to the 16th annual meeting of our Association, I am mindful of the fact that seven years have passed since we last met in Atlantic City. Since then much water has gone over the dam, bringing about numerous changes in personnel and methods of operation in our own department. In reviewing the activities of the division, I find much for which to be grateful. The work undertaken has been constructive; our efforts toward the adoption of sound practices have met with your generous and effective support.

Members of the general committee gave generously of their time during the year. The regularity with which they attended meetings was surprising. We started with a program of bi-monthly meetings, and carried out that program; and at nearly all of our meetings a full attendance was the rule. The Advisory Committee, comprised of past chairmen, was likewise helpful with suggestions borne of long experience. I thank each member who devoted time to committee matters.

Matters of purchasing practices were discussed with only such publicity as was deemed consistent in the premises. The Class I railroads spent for material and supplies during the first quarter of the present calendar year 250 million dollars, which seems to portend another billion dollar year. Realizing the magnitude of this, and the influence it might have, it follows that matters involving such a huge undertaking must be discussed discreetly.

The railroad storekeeper has my sympathy, because he is a hard-working, intelligent person, who is not in position to show in any concrete form his contribution to improvements in railroad operation. There is no column in annual reports, or other important papers, to show the reduction in cost of handling, so he has to content himself somewhat with reflected glory. He has my admiration, because, in spite of these conditions, he is constantly and vigorously prosecuting his work; and no greater praise is necessary than to point to the results in inventories and handling costs, the adoption of new methods and modern appliances; orderly distribution in many cases direct to users in the way of shop deliveries.

For the first time, we have given considerable thought and study to handling, custody and distribution of material exclusively used by engineering and maintenance departments. This division has always held that all unapplied material rests in the custody of the store department. We may not have convinced all concerned that that is the proper method, but we have gained considerable ground and any conscientious objectors remaining will soon fall in line. Our object is to prove our method rather than attempt to force or otherwise influence radical changes. Many of these matters will be the subject of study for many years to come.

During the past year, A. L. Sorensen was vice chairman and he has been of inestimable value. Mr. Sorensen and Mr. Scott also did splendid work on the committee on committees. Our secretary, W. J. Farrell, has worked diligently to carry out the objects of this organization. He attended many meetings during the year, being present at nearly all of those held by subject committees, as well as those of the purchasing agents and storekeepers' groups. These meetings kept Mr. Farrell traveling from Maine to California and from Washington to the Gulf of Mexico. I have felt guilty many times in requesting him to attend meetings if he could find time, but he has always found it. He has been careful, efficient, intelligent and willing at all times to do all things, and I want to express my personal gratitude for his assistance.

Some of us have reached the point where we are considered old timers and the younger men in the organization must be ready to take up and continue the work. There is no greater opportunity or vehicle than this organization for promoting the cause of the railroad industry and likewise the individual with ambition and hope for personal advancement. Consequently, I appeal to the younger element to continue its interest; to prosecute to a successful conclusion its objectives, and I advise those of us in the older brackets to give them every opportunity to participate vigorously and regularly in the affairs of this organization, to the end that its aims and ideals may be perpetuated and it may continue to render a service worthy of its name.

Report of General Committee, P. & S. Division

Sustained interest in regional meetings seen — Debate on direct pricing staged

Meetings of the General Committee were held on September 18, 1936, in Washington, D. C.; on November 5, 1936, in New York; on February 23, 1937, and April 27, 1937, in Washington, D. C.

Direct Pricing

The subject of direct pricing, has been discussed at annual meetings during the past few years, and has also been discussed at group meetings. In addition to the regular committee reports which will be presented at this meeting, and, in view of differences of opinion, the committee has felt it advisable to have papers prepared to present the affirmative and negative viewpoints of individual members of the Division. The subject will be presented in the affirmative by B. T. Adams, district

storekeeper, Illinois Central, and, in the negative, by W. F. Redman, traveling storekeeper, Chicago & North Western.

Annual Contest

The best papers submitted in the annual contest this year will be presented by the authors at this meeting, as follows: "Constructive Thinking," by J. O. Brophy, chief clerk, Canadian National, Port Mann, B. C., and "The Supply Department and Public Relations", by Emmet J. Kennedy, stock clerk, division storekeeper, Baltimore & Ohio, Ivorydale, Ohio..

Purchasing and Stores Group Meetings

Regular meetings of the group committees in the various re-

gions have been held during the past year with renewed interest. The discussions on various subjects have been active and much benefit has been derived by those in attendance. The consideration of local matters was usually a major portion of the discussions of many of the groups and, in addition to the regularly-assigned subjects, the question of further adherence to the adopted recommendations of the division was an important feature of the activities during the year. Through this procedure, the recommendations are kept actively before the members and increased adherence is promoted therefrom. These meetings are also proving beneficial to the regular subject committees of the Division. Representatives of the committees, located within the regions attend the meetings as contact men with instructions to present subjects for discussion and solicit suggestions from the groups.

Following the regular procedure, meetings of stores groups are held at central stores points, for the purpose of affording the members in attendance an opportunity of observing practical stores operations. Some of the stores groups hold meetings in conjunction with the purchasing groups of their particular region.

Special Purchasing Committee

Several meetings have been held during the year, under the direction of the vice-president of A.A.R. The activities have dealt with questions concerning relations with industries, coal prices, specifications, etc.

Commodity Price Index

At the request of the Bureau of Railway Economics for information relating to a price index for basic commodities, the chairman appointed a special committee to study this subject and a permanent list of items was recommended to the Bureau, for the purpose of obtaining prompt information from the carriers. This information will be obtained by the Bureau of Railway Economics as required.

Consideration was given to the annual request by the Bureau of Railway Economics for annual purchasing statistics and recommendations were submitted. No important change was suggested and it is understood that those statistics will be obtained and published same as heretofore.



W. R. Culver
Chairman

Under the heading "Detailed Classifications," page 4 of the Standard Material Classification book, the committee recommends the inclusion of train control materials in the classification index, as follows:

Train Control Apparatus and Parts (for Roadway or Equipment installation)	Class Number
Based on materials involved or assembled units.....	{ 2-A 22 23 25-B 25-E

At the request of the Public Relations Department of the Association for information relating to purchases by states, a tentative form was submitted for obtaining data from the carriers. This information will be available in connection with the public relations activities, and will also be of value to each railroad.

Report on Commissary

The vice-president of the A.A.R. appointed a special committee, consisting of representatives of the dining car and accounting departments, and this division, to give further consideration to the subject of commissary supplies. A report was prepared and submitted to the vice-president, embracing suggestions and recommendations for the purchasing, handling, distribution and accounting of commissary materials.

Purchasing and Stores Manual

The question of reprinting the manual was considered by the general committee during the year and it was decided that a special committee be appointed to review the present rules and revisions. A complete report of the recommendations will be submitted later with the object of reprinting and issuing the manual in the near future.

Scrap Arbitration Committee

This committee was established primarily for the purpose of providing a means for the proper interpretation of the standard scrap classification. Members who have cases of scrap claims, requiring further interpretation, are requested to forward them to the secretary's office.

Committee on Nominations

The general committee offers the names of the following members as candidates for the committee on nominations for the ensuing year: A. C. Mann, vice-president, Illinois Central; O. A. Donagan, general storekeeper, Boston & Maine; J. W. Wade, general storekeeper, Norfolk & Western; A. H. Lillengren, purchasing agent, Great Northern; J. H. Lauderdale, general purchasing agent, Missouri Pacific lines.

Classification of Material

Information was obtained from the members and a recommendation made to include a memorandum under "Detailed Classifications", page 4 of the Standard Material Classification book, as follows:

Air-Conditioning Material: It is suggested that the various parts be allocated in their respective classes, i.e., Class No. 14, 24, 25 and 46, and that there be included in the index, Air Conditioning Equipment and Parts, based on materials involved or assembled units, Class No. 14, 24, 25-C, 25-E and 46.

The following changes are recommended in the detail of classification:

Item	From Class No.	To Class No.
Bushings, spring rigging	14	17
Bushings, steel (locomotive)	14	17
Bushings, steel (car)	1- ^r	18
Bowls, closet	36-A	42
Bowls, wash	36-A	42
Radiators	36-A	42
Seats, hopper (for buildings)	36-A	42

RECOMMENDED ADDITIONS

Screws, track lag	Class No. 1-B
Tanks, expansion	Class No. 42
Tanks, hot water storage	Class No. 42

The committee consisted of: W. R. Culver (chairman), general storekeeper, Chesapeake & Ohio; S. L. Bouque, assistant to general storekeeper, Southern Pacific; D. H. Reed, traveling storekeeper, Southern; W. S. Riach, chief clerk to general storekeeper, Atchison, Topeka & Santa Fe; E. G. Roberts, chief clerk to general storekeeper, Chicago, Rock Island & Pacific; C. H. Murrin (chairman ex-officio), general storekeeper, Louisville & Nashville.

Discussion

B. T. Adams (I. C.): What is the reason for transferring from class 36-A to class 42, closet bowls, wash bowls, radiators, and hopper seats for buildings? On the Illinois Central we use

these for storage purposes also, and I don't think they would fit in well with Class 42, but they do fit in nicely with 36-A. This also applies to the last two items which the committee adds to the classification—expansion tanks, and hot water storage tanks. They should be in 36-A.

W. R. Culver (C. & O.): That change was made for the reason that the items work in harmony with pipe and pipe fittings, rather than with building supplies.

Mr. Adams: I would like to see them left in 36-A, and I so move.

H. M. Rainie (B. & M.): From a purchasing angle the recommendations of the committee seem to be desirable, because it ties in with plumbers' supplies, and pipe fittings.

L. C. Thompson (C. N.): This Committee ought to be careful in making any changes in its recommendations. We have gone along for a great many years with wash bowls and radiators in class 36-A and while it may fit in with the purchasing organization in purchasing, it means a great change in some of these stores in the way of stock, if the classification is changed to 42.

J. U. King (A. C. L.) and F. J. McMahon (N. Y. C.) expressed agreement with Mr. Adams.

L. F. Duvall (A. C. L.): A great many roads have addressograph plates and have their stock so arranged that they would have to upset their entire setup to change from one class to the other. Not only would they have to change the stock-books, item numbers, and things of that kind, but they would have to upset the physical arrangement of their stock. There are a number of railroads represented here who have not adopted this classification. Some have personally expressed their views along this line and have said when we get through changing it they might adopt it. I would like to inquire as to the number of railroads here who have not adopted the classification.

Mr. Culver: The classification has been adopted by about 70 per cent of the railroads.

J. K. McCann (C. B. & Q.): The committee has included not only wash basins or bowls but also radiators, expansion tanks and hot water storage tanks, getting into heating. There has to be a division somewhere between the heating plants and the pipe fittings. If a radiator is to be considered part of the pipe fitting portion of it why not the heating plant itself or the stove? The classification should be left as it is.

W. S. Morehead (I. C.): Had the original classification placed these in 42, I would go along with the suggestion. But we have gone to the expense of arranging our stock according to these classes. We will make a mistake in tampering with this classification unless there is some decided reason for changing from one class to another.

A. S. McKelligon (S. P.): I move the report be adopted without further argument. There are 60,000 items here. You can get into an argument on every one of them.

C. H. Murrin (L. & N.): One of the features the committee had in mind is that when requisitions are submitted to the store department for these items they include a lot of the fittings, and practically all of them are in Class 42.

N. V. Oldenbuttel (A. C. L.): We get requisitions for pipe fittings, and all the material, right on the same requisition. We have to make lots of changes in order to get the requisition in line with the issue.

J. E. Scott (M. K. T.): This is a question of how much it is going to cost to make this change. If it is going to cost a lot of money we ought not make it because it isn't worthwhile. I would suggest that these items be left out of this Committee's report and be handled by the incoming Committee.

Chairman Clifford: Mr. Adams has put a motion to the effect that the committee's report be accepted and modified to eliminate the last four items which it recommends be changed from 36-A to 42.

The motion to revise the report as recommended was adopted and the report was accepted.

Report on Handling Railroad Scrap

Detailed data on comparative costs of converting iron and steel into higher grades for sale developed



W. J. Sidey,
Chairman

In view of the fact that no revision in the scrap classification had been made since 1927, the committee decided to undertake a careful recheck of all the items for the purpose of bringing them up-to-date, should any change prove necessary or advisable. The secretary obtained from the railroads copies of their scrap classifications showing how they were actually selling the scrap, and the committee has undertaken the task of comparing the classification of each road with the A.A.R. classification.

Studies so far indicate that the A.A.R. scrap classification is pretty generally in use on the railroads. Some roads have made minor changes in their classifications to suit individual ideas. Very often these changes were slight differences in grammatical expression which, in the opinion of the committee, were not to the advantage of selling road. All roads should recheck the classification they are using with the A.A.R. Standard Classification with a view to adopting the latter in its entirety. The check has not been completed, and no changes are recommended.

Scrap Preparation

Scrap handling involves loading, unloading, sorting and "preparing." It is economical to sort all scrap to the higher priced classes at all times, and it is likewise profitable to "prepare" certain classes of scrap to higher priced grades.

The A.A.R. Scrap Classification consists of 45 classes of

ferrous scrap, of which 41 are produced by sorting and 4 by combined sorting and preparing. Of the 41 sorted classes, 15, viz., Classes 7, 8, 9, 11, 13, 14, 18, 21, 28, 29, 30, 31, 35, 43 and 45 are subject to preparation to further increase their value. A table has been prepared which lists items in these classes and the costs to prepare them.

The term "preparing" or "preparation" applies to the additional labor performed on the scrap to increase its value, while the term "premium" indicates the differentials in price offered for the prepared scrap as compared to the unprepared. Profitable preparation is essentially dependent on costs and premiums, and the degree to which these two essentials are observed represent either success or failure in that work.

Costs to Prepare Scrap

Correct costs can be determined only by actual tests. In torching tests, cylinders and gages are used to check the gas consumption, tips are studied and regulated according to the cutting and preheat orifices to reduce gas consumption, equipment is closely watched to prevent leaks and waste, material is placed to minimize movement, and the volume of group cutting extending over an eight-hour day is used, if at all possible, in preference to smaller lots to allow for fatigue, time-outs and other interruptions. The same principles of procedure also apply to shearing, hand stripping and breaking tests, to establish efficient methods of cost determination. Each railroad should devote special study to the various kinds and types of cutting tips in use.

The table shows the comparative direct costs (labor and material only) on 13 member roads for preparing 15 classes of scrap subject to further work to increase their value. Listing

these items does not necessarily imply that they are being prepared as a regular practice, it being assumed that only such items are prepared currently as the premiums justify. All overhead and supervision were eliminated in this study because of the wide variations, it being felt that more constructive comparisons could be made by simplifying the factors and dealing with only the primary costs. An analysis of the man-hours, rates, methods and gases used indicates a much more satisfactory basis for a comparison of these costs than has been available in the past.

The form of the statement should be adopted by all railroads

for use in cost studies to establish a uniform method of computing the direct costs and to encourage active and progressive efforts in the work through the interchange of this data. All preparation cost studies and tests should be placed under the jurisdiction of one individual in the scrap department for active and progressive development of the work at all times.

The premiums, where the point of origin and the destination of the comparative classes is different, must be figured on the basis of the destination or delivered prices to equalize the variations in haul between different destinations. This does not apply

STATEMENT SHOWING DIRECT COST OF PREPARING VARIOUS ITEMS OF SCRAP TO HIGHER PRICED CLASSES. THE TERM "PREPARING" DESIGNATES THE ADDITIONAL WORK PERFORMED ON THE SCRAP OTHER THAN THE BASIC OPERATIONS OF LOADING, UNLOADING AND ASSORTING TO FURTHER INCREASE ITS VALUE.
(NO OVERHEAD EXPENSE OR SUPERVISION INCLUDED)

Submitted by:

LEGEND:

LEGEND:-

**a Shearing.
Torching.**

Hammerwork—Breaking Cast Iron, etc.

Crane Expense—Transferring Scrap to Shears.
Show manufacturer's number and drilling of holes.

b Show manufacturer's number and drill size of holes.

(N-1)

Date _____

2800

c State if covered with excessive rust, paint, lime, grease or dirt. State if all attachments removed. Show type of under-

d Show whether All Carbon Steel Frogs or Railbound Manganese.

Comparative Costs of Preparing Railroad Scrap to Higher Grades

where the point of origin and destination of the comparative classes is the same.

Production and Sale of Scrap

Scrap is usually sold in advance of accumulation, and in accordance with A.A.R. Classification, 45 days are allowed for delivery. Scrap for preparation should be reported for sale in both the prepared and the unprepared state. When bids are received, the selling agent should refer to the current list of scrap preparation costs on file, and wherever the difference between the prepared and the unprepared scrap indicates a profit, the scrap should be sold prepared. When the premium is not sufficient to warrant profitable preparation, the scrap should be sold unprepared.

Contacts with Consumer

The committee is convinced of the potential economies possible by contacting the producer in the preparation of scrap, and again suggests that scrap supervisors acquaint themselves with the conditions at the consuming points of their scrap.

Scrap Arbitration

Case No. 1—Submitted by member road:

"We recently made a shipment to a mill of Class 24 No. 1 heavy melting steel, which included some boiler and firebox material cut to charging box size. The car was rejected and the broker to whom we sold the car stated that the mill objected to the boiler and firebox material because of scale which contains a higher percentage of sulphur.

The committee concluded that inasmuch as A.A.R. scrap Class 24 specifically states that boiler plate must be "practically clean of lime," to which provision the shipment in question did not conform, the rejection of the car was justified.

New Markets

Some roads reported that they have been able to secure better prices for the following items of scrap when sold separate rather than to include them in standard A.A.R. classification: Locomotive boiler plate, 18 in. by 30 in., clean; locomotive boiler plate, 24 in. by 6 ft.; brake-beam channels; and brake beam truss rods.

In view of the small margins existing between profit and loss in scrap and dismantling operations, costs and operating figures are absolutely essential to prevent losses. To be most effective, these records should be maintained at the scrap plant where they are available at all times for ready reference.

The committee submitted a list of injuries occurring at scrap plants of some of the member roads, showing nature of injury, cause, and corrective measures applied.

The committee consisted of W. J. Sidey (chairman), supervisor of scrap and reclamation, Lehigh Valley; G. W. Alexander, general storekeeper, Central of Georgia; E. J. Becker, district storekeeper, Southern Pacific; D. D. Canavan, general foreman, reclamation plant, Boston & Maine; V. N. Dawson, district storekeeper, Baltimore & Ohio; R. E. Hamilton, supervisor reclamation, Chesapeake & Ohio; C. L. McIlvaine, assistant purchasing agent, Pennsylvania; C. A. Malone, purchasing department, Atchison, Topeka & Santa Fe; C. E. Reasoner, scrap supervisor, Missouri-Kansas-Texas; and J. C. Kirk (chairman ex-officio), assistant general storekeeper, Chicago, Rock Island & Pacific.

Discussion

E. W. Peterson (Bang & Aroos.): The committee has referred to prepared and unprepared scrap. There have been two previous committee reports on this subject. The comment one committee made was: "Except where some local condition may exist it is felt that it would be extremely wasteful to attempt to sell unsorted or mixed scrap. The increased returns from grading of scrap together with the increased hauling of material made available for reclamation purposes amply justify the practice of selling no scrap that is unsorted."

The committee reports on the financial return but it seems to me that the larger point is reclamation.

W. J. Sidey (L. V.): We are not concerned here with sorting scrap. Preparation applies to the additional labor performed on the scrap other than the basic operations of loading, unloading and sorting, is that right?

Mr. Peterson: Then I understand the word "unprepared" means that the scrap has already been sorted?

Mr. Sidey: Yes. Unprepared scrap is scrap which could be prepared but isn't prepared according to the term here.

Mr. Peterson: Somebody has to prepare it. The mills will not accept it.

J. C. Kirk (C. R. I. & P.): There is a difference between prepared scrap or unprepared scrap and sorted scrap. According to our classification, you can sort scrap into heavy melting steel, structural steel, bolsters, frames, side frames, and items of that kind, and sell it that way. Now we are going a step further. We are talking about prepared scrap. By that we mean such items as structural steel, side frames, and bolsters that are cut up and prepared into heavy melting steel. There is no conflict with previous reports. Prepared scrap is something different than sorted.

B. T. Adams (I. C.): We try to prepare our scrap currently. If we lay it aside, and advertise it as unprepared scrap and also as classified scrap we would rehandle some of that scrap. From our experience in recent scrap sales we can determine whether it is profitable to cut class 35 into class 24. Certainly we would not want to accumulate items of structural steel, like sheets, pipe, bolsters and others, and let them stay in our yards 45 or 60 days while they are being advertised and sold in an unprepared state. We would want to prepare it and advertise it to the best advantage in accordance with our experience and prices.

Mr. Sidey: The report says: "Scrap is usually sold in advance of accumulation, and in accordance with A.A.R. Classification, 45 days is allowed for delivery."

Mr. Adams: We accumulate scrap and sort it the same day that we receive it. We advertise in advance and prepare it currently, every day. We anticipate our sales, but not our sorting. We sort and prepare every day.

Mr. Sidey: If you report scrap 30 days in advance, you are reporting individual classes of scrap for sale. You couldn't report 1,000 tons of mixed scrap. When you wanted to sort it, 30 per cent of it would be cast iron, which you would have to report.

Mr. Adams: I wouldn't report any mixed scrap in the first place. We decide whether it is to our advantage to cut bolsters into Class 24 at the time we unload.

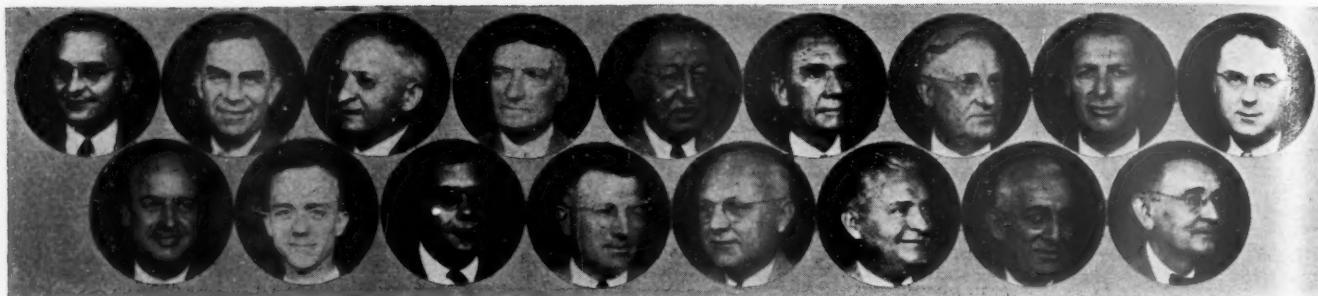
Mr. Sidey: The object of this recommendation is that you report your scrap for sale before it gets to your dock, and then you have your choice between the unprepared and prepared prices. If the premium justifies, you prepare it.

Chairman Clifford: All of that was covered by a previous recommendation. Every railroad has the privilege of sorting its scrap from which it will get the best returns. That doesn't necessarily mean the price obtained, but it means the net that comes from the sale.

L. F. Duvall (A. C. L.): I am inclined to agree to some extent with Mr. Adams. It seems from the report that every time you want to get out an inquiry to find out what you get for your scrap you have to ask for two or three different classifications to arrive at what you are going to get for it. The average man who sells scrap knows what the differential is. I don't think it is necessary every time you sell a little scrap to have to ask the question over and over. You would be meeting yourself coming back if you followed such a practice.

Mr. Kirk: There is a differential between prepared scrap and unprepared scrap that varies from month to month. Anyone that cuts structural steel for \$1.50 per ton will be losing money if he cuts that scrap in a month when a differential between heavy melting and structural steel is only 50 cents if he is making money when the differential is \$2.00. The thought of the committee is to save money. You sell your scrap in advance. There is no rehandling of it because you cut to the orders that you have. It is not a complicated thing to report it this way.

J. J. Collins (Erie): Certain markets in this country make it possible for some railroads to sell their scrap unprepared, and that is possible particularly during a rising market. For



instance, these dealers will pay more for unprepared scrap at that time, gambling on the possibility of scrap going up, and they could stand the extra cost for preparation. The statement the committee has prepared is valuable and should be in every purchasing agent's office. We can all go on the way we have recommended heretofore for preparing the majority items of scrap, but we should know how to plan, and what it is going to cost.

Chairman Clifford: I think we are wasting a lot of time over something that has already passed.

Mr. Peterson: I would like to ask the chairman of the committee if this isn't the initial report on prepared and unprepared scrap.

Mr. Sidey: This report and recommendation are absolutely new. You can't find any record in the Division's proceedings of meetings that has anything whatever to do with these items.

Chairman Clifford: I apologize. (Laughter).

W. P. Stewart (I. C.): I worked on scrap committees for quite awhile. I believe that this committee has outlined the method of handling scrap carefully and thoroughly.

J. U. King (A. C. L.): I am sitting just about half-way between the chairman and Mr. Adams. They agree with each other but they don't quite understand what each is driving at. From my observation, they are both driving at the same thing and I move that the report be received.

The report was received as read.

Report of Joint Committee on Reclamation

Approved methods of converting scrap to new uses result from collaboration with Mechanical and Engineering Divisions



J. J. Collins
Chairman

During the year, we have continued our contact with the Mechanical and Engineering Divisions with a view of developing methods of reclamation that would lead to economies in railroad operation.

Particular attention was given to certain features of the reclamation of brake beams and couplers and arrangements have been made to meet with representatives of the standing committees on brake beams and couplers of the Mechanical Division. Until definite approval is given, we do not feel that the recommendations should

be published. The committee has developed a number of new reclamation practices that are being followed on some member roads and these practices are detailed below as information:

the old grease. The remaining grease is reformed into cakes and used over again. The old trimmings should be weighed and a pound of valve oil added for each 100 lb. of old grease. This mixture should then be heated in a container to liquid form. While in a liquid form it should be stirred until the heavy refuse settles to the bottom of the container and the lighter refuse rises to the top. This should be skimmed off. The liquid grease remaining on top should be drawn off through a pipe located 6 in. from the bottom of the container, strained through a fine mesh screen and run into molds. After cooling, the grease can be taken from the molds and put into a press where it should be forced through a steel plate containing a large number of $\frac{1}{8}$ -in. openings. This mixes the grease thoroughly. After this operation, the grease should be run through a press and formed into sticks for use as rod grease on freight or switch engines. One railroad reports that it has been reclaiming burnt and dirty grease in this manner for four years and has found it very satisfactory and economical.

Driving-Box Compound

In reclaiming driving-box compound from grease cellars, it is the general practice to trim off the burnt and dirty parts from

Bridge Stringers

Twenty-four in., 120-lb. I-beam center sills from retired cars can be substituted for timber stringers in railroad bridges. These





can be used with wood pile bents with double second-hand 10-in. I-beams as caps. Prints are available in the secretary's office showing how these are used on multiple-span open-deck trestles.

Pins for Cast-Steel Trucks

These can be made from 1½-in. brake-beam rods. This is accomplished by cutting the rods to various lengths from 16½ in. to 17½ in. long. The pins are locked in place in the truck with a plate of 3/16-in. steel, 5 in. long, cut so that it can be bent over at the end of the pin.

Platform Skids

These are made from box-car steel side doors removed from retired cars. The doors are cut with acetylene torches and assembled by placing in a jig. The sides and floors are reinforced at each end with an angle 1/4 in. by 3 in. by 3 in., bent U-shape and welded to the floor and sides at each end.

Ice Scrapers

Ice scrapers can be made for placing over the end of the handle of snow brooms by using a piece of 1-in. pipe about 5 in. long cut off square at one end and pinched at the other. A piece of spring steel 1/4 in. by 3 in. by 3 in. tapered at one end is fitted into the pinched end of the pipe and welded. The free end is ground to a chisel edge. This is used for cleaning switches and in dismantling operations for removing rust and other foreign substances from the scrap that is to be cut with a cutting torch.

Guards for crossing slabs can be made from old 1/4-in. steel car sides by cutting and punching and can be used on the tapered ends of the concrete slabs.

Drain covers can be made from plates obtained from bridge girders by cutting to proper size and punching holes through the plate.

End sills for freight cars can be made by cutting channel side sills from dismantled cars to proper length as the under frame is cut up, and later fabricating with cutting torches, drills or punches.

Car-truck spring planks can be made by cutting the 15-in. channels from the center sills of dismantled cars to proper lengths and drilling them with the proper number of holes to fit over the spring bosses in the truck side.

Freight-car king pins can be made (a) from truck column bolts by removing the head and pointing the ends in a forging machine and (b) from winding bars removed from hopper cars, cut to length and slot punched for a keyway.

The report included drawings to show the method of making the articles described.

The committee members from the Purchases and Stores Division were: J. J. Collins (chairman), supervisor of scrap and reclamation, Erie; I. C. Bon, superintendent of reclamation, Wabash; E. R. Casey, superintendent of reclamation, Union Pacific; T. J. Hegeman, superintendent of scrap and reclamation, Chicago, Burlington & Quincy; E. W. Peterson, general storekeeper, Bangor & Aroostook; A. L. Prentice, manager, scrap and reclamation, New York Central.

Discussion

Peter Young (A. T. & S. F.): Are we permitted to use the old brake beam rod for brake hanger pins? If I remember correctly, the A. A. R. rule called for a higher grade steel, the old rod was around 18 in carbon.

J. J. Collins (Erie): You will find that a lot of brake beam rods run pretty high in carbon. A lot of them are made from axle steel.

N. B. Coggins (Sou.): What is the cost per pound for reclaiming the driving box compound?

T. J. Hegeman (C. B. & Q.): That costs \$142 per 1 cwt.

Mr. Coggins: Is it satisfactory for use in a fast freight service?

Mr. Hegeman: We use it for rod grease only, in any kind of freight service.

W. J. Sidey (L. V.): When this grease is reclaimed, do you have it tested before you use it again?

Mr. Hegeman: The grease batches are occasionally tested and it is all right for rod grease. We have been using it for the past four years.

Mr. Sidey: We have tried several methods of reheating the old chips from the grease. We found that it takes the consistency out of the grease and we can't put it back in.

Mr. Hegeman: The mechanical department wants it. They ask for every bit that they can get.

J. U. King (A. C. L.): Is any other road reclaiming this grease besides the Burlington?

Mr. Hegeman: The Southern Pacific reclaim driving box compounds.

Mr. King: On the Burlington, is it customary for the grease to be formed in the plates by the stores department?

Mr. Hegeman: Yes.

W. H. Hopkins (M. P.): If this grease is good enough for fast freight trains, why is it not good enough for faster trains? We tried it on the Missouri Pacific and didn't have much success.

A. C. Wagner (Erie): What degree of heat is used?





Mr. Hegeman: About 500 deg. We keep it below the flash point of the valve oil.

R. E. Weedon (Sou.): Can you give me an idea of the cost of the plant for reclaiming burned grease?

Mr. Hegeman: We have only a large kettle and the plant probably costs \$50. The grease is all reclaimed at a central point. The cost of shipping and reclaiming that grease is not included.

J. T. Goodloe (Sou.): I would like to have a little more information about the use of brake hanger pins.

Mr. Collins: We are using them on the Erie, and they have been very satisfactory. A number of other railroads are using them also.

James Young (Penna.): We have been using them for some years, but up to the last two years we made them of high carbon steel—50 to 55 carbon. We have discontinued that. Before this

is put into effect, I think it should be approved by the mechanical department. While it is true that a lot of brake hanger pins have been made from axle steel, more than 75 per cent are mild steel.

Mr. Hopkins: Does the committee mean the skids are made from steel side doors or steel ends?

Mr. Collins: Steel side doors.

Frank McGrath (B. & M.): What is the cost of making the ice scrapers?

Mr. Collins: Fourteen cents.

Mr. McGrath: We can buy them for five cents, I think.

W. J. Sidey (L. V.): Do you have any idea what it costs to make the skids from the doors?

Mr. Collins: The actual out-of-pocket cost is \$3.75.

There being no further discussion, the report was accepted as read.

Convention Hears Contest Winners

Canadian National and Baltimore and Ohio honored in competition for papers on storekeepers

Continuing a practice begun in 1927, the Division held a competition during the years for papers from employees of railway purchases and stores departments on departmental practices and problems, and the committee of judges, consisting of A. C. Mann, vice-president, I. C., O. A. Donagan, general storekeeper, B. & M., and E. G. Walker, assistant general purchasing agent, A. T. & S. F., awarded the honors equally to J. O. Brophy, chief clerk, stores department of the Canadian National at Port Mann, B. C., and to Emmet J. Denney, stock clerk in the office of the division storekeeper of the Baltimore & Ohio at Ivorydale, Ohio. Mr. Denney won similar recognition in 1931. In the same competition, honorable mention was given to Dana Phillips, clerk in the purchasing department of the Boston & Maine, Boston, Mass., Ralph K. Hess, stockbook inspector, general storekeeper's office, Pennsylvania, Philadelphia, Pa., and A. S. Simpson, stockman, Canadian National, Transcona, Man. As a reward for their success, the winners presented their papers at the convention yesterday. The papers were in part as follows:

Constructive Thinking

Simplification of stocks, standardization of materials and the inauguration of present stock-control systems and equipment, to-

gether with innumerable other improvements, have placed storekeeping methods on a higher plane than ever before in the history of railroading. But, what about the personnel? Have we, as individuals, continued to advance in personal proficiency?

All progress is based upon constructive thinking, which is another name for "reflection," and continued advancement in efficiency demands that the habit of reflection be cultivated and developed, not only by heads of departments, who are responsible for the formulation of general instructions, but by every individual in an organization.

There are countless opportunities in the purchasing and stores departments of a railroad to exercise the reflective habit. If a man is instructed to load certain material into a freight car, he should ask: "Have I placed this material in the best position to preclude the possibility of its falling, etc., or causing damage en route, and is this the best I can do to facilitate handling at destination?" Then again, it is a comparatively simple matter in most cases to purchase for the using departments whatever material they requisition, but reflection on the part of the stores department officer or employee may enable him to suggest the substitution of certain surplus material, which the using department would consent to utilize, thereby liquidating surplus and avoiding the purchase of new material.

Too Much Letter Writing

The handling of correspondence could be greatly simplified and the volume of mail considerably curtailed if all letter writers would reflect upon whether or not the information given will



enable the recipient to deal intelligently with the transaction. Unfortunately, this practice is not always adhered to and, as a consequence, unnecessary correspondence ensues, material is delayed and time is wasted.

Invariably, when accidents or serious errors are being investigated, the responsible party gives the excuse—"I didn't think!" and these few words express volumes. It is a truism, particularly when we become very familiar with our work, regardless of whether we are employed in an office or warehouse, or whether we are laborers or supervisors, that there is a natural inclination to relax vigilance and carry on more or less mechanically. Perhaps this tendency is more pronounced in some than in others, and the only means of combating it is by the use of a little will power.

Placards Aid

It is impossible to force a man to think constructively, but placards put up in conspicuous places, bearing the one word "think" in large letters would perhaps be instrumental in making constructive thinking habitual. That one printed word "think" has really an almost magical effect from a psychological aspect. It is difficult to see it without following the command it gives, and its periodical appearance would have the effect of indelibly impressing its significance and importance upon our minds, and tend to lessen the frequency of accidents and at the same time increase the general efficiency of the purchasing and stores department organization.

We have just emerged from one of the worst depressions in history; a time when necessity demanded a high standard of efficiency, notwithstanding adversities. Changing conditions called for the adoption of revised methods and alterations in policies. The challenge was met with constructive thinking, and we have come through with flying colors. Many valuable lessons have been learned from the depression. Let us reflect upon these lessons frequently; let us embrace the habit of constructive thinking and encourage others to do likewise. It is the answer to every difficulty, and the means by which the purchasing and stores departments have been elevated to the enviable position of importance they now enjoy in the economic life of a railroad.

The Supply Department and Public Relations

By Emmet J. Denney



E. J. Denney

The Association of American Railroads reorganized in December, 1935, their Public Relations and Advertising Department, to create a new public interest in the railroads by demonstrating that they are doing a much better job than most people realize. Just where does the supply department fit into this program?

First in line of importance is good esprit de corps. It is the cornerstone for building a strong and efficient organization and, unless we function at the highest efficiency, we cannot

render intelligent service to the using departments or give courteous treatment to manufacturers and jobbers with whom we deal, who, incidentally, are travellers and shippers. Every individual must display teamwork. Each man must not only pull his share, but he must pull it smoothly and evenly.

Placing Orders and Awarding Contracts

Perhaps the greatest opportunity for doing effective supply department public relations work lies in the handling of orders and contracts for materials and supplies. Every order for materials sent to a manufacturer or jobber assists him to keep his plant in operation. The size of the order, the date of delivery, the descriptions, specifications, etc., all have a direct bearing on his production costs, and this feature should be the subject

of constant research by the alert purchasing agent. Blanket orders for standard stock items to be delivered to storehouses weekly or monthly for a six months' or twelve months' period always make relations more friendly, because it makes quantity production possible for the manufacturer, resulting in lower production costs, and also lower prices to the railroads. This also tends to bring the supply department into closer contact with the manufacturers, and helps cement the bond of good will which is the railroad industry's most valuable asset.

The seller is also entitled to know when and for what reason he has been unsuccessful in bidding on an order. There may be sound reasons for not informing a bidder the terms or price which have been named by his competitor, but no possible harm or violation of ethics is risked by informing the unsuccessful firms that the quality, price, or delivery of another concern was more advantageous.

Reception of Salesman

The reception of sales representatives both in the purchasing agent's and storekeeper's office should be prompt, courteous and businesslike. The purchasing agent should recognize that the salesman's time is of value to himself and his concern. Any curtailment of the profitable use of that time tends to restrict the salesman's income and to increase the sales costs of his company. Sales cost is a factor in the price of goods. Hence, there is an economic advantage to the buyer, apart from the instinct of fair dealing and good public relations work, in the proper reception of salesmen. The golden rule applies with force here, because industrial traffic managers and sales managers usually work together in such matters.

The telephone is another medium for rendering effective public relations work, and should be given more careful consideration. It is exasperating when the voice at the other end is harsh, inaudible or fails to enunciate correctly. A pleasant voice over the telephone the same as the microphone is entrancing. The tremendous opportunity that the railway personnel has of building up a favorable point of view towards the industry, through this medium, was shown by the fact that on one small railroad alone, 13,000,000 telephone calls were received from the public in a year.

Correspondence

The railroad business, the same as any other, depends on the good will of their customers, and unless employees can write a friendly, clear-thinking, constructive letter, the carrier is lowered in the public's estimation. Just one letter that is stiff, unfriendly, or lacking in force and clarity may lose a good customer. This applies particularly to the storekeeper's and purchasing agent's office where manufacturers are being traced daily for shipments of materials, and where they are also requested to furnish disposition on materials furnished incorrectly, and other supplies rejected account failing to come up to specifications.

Too much cannot be said regarding this phase of supply department work. Section stockmen, storekeepers, stores accountants and others handling invoices should be impressed with the importance of prompt and efficient handling, and how this feature plays an important role in public relations work. We all desire prompt payment for services rendered or goods furnished, and so it is with the suppliers of materials.

Keeping the chief public relations officer posted regarding news items on constructive features of supply department work is another form of good-will building which should not be overlooked. Good housekeeping, efficient and economical operation of storehouses, and scrap yards, amounts saved, and methods employed in reclamation practices, will usually furnish the basis for interesting stories. The volume of purchases made from time to time, especially at the present when railway purchases are continually amounting, and how this money is distributed among the various communities, should prove of interest to business people, who are potential investors in the property.

Every man engaged in railroading today, regardless of the particular branch of service, should be a customer's man. At the present time, there is a movement among most of the railroads, the purpose of which is to enlist the aid of employees

of all departments in solicitation of traffic. Some go so far as to hold traffic meetings after working hours, at which the many problems of the railroad field at large are discussed, and a record maintained of the activities of the men. Every supply department employee and member of his family should interest themselves in such movements, and where committee work is involved they should offer their services willingly, and take an active part in all discussions.

In any public relations program, properly trained personnel is essential, and of the many tasks facing railroad management

ments, that of the training and education of employees and supervisory officers will assume far greater importance in the years ahead than at any time since the World War. It is a well-known fact that the average age of railroad employees, due to the operation of the seniority law during a long period of retrenchment, is comparatively high. Consequently, personnel changes due to retirement are bound to be unusually large in the years to come. That fact alone would make necessary greater attention to personnel and training programs than has been accorded them in the recent past.

Report on Forest Products

Find most roads ignoring tie specification—favor
reducing grades of car lumber



(e) Moffett
A. J. Neault,
Chairman

for a joint committee with the Engineering Division, to make a further study of cross-tie specifications. This action was taken as a result of a study by the committee to determine the extent

A tentative revision of specifications for temporary grain doors was included in the 1936 report and approved at the annual meeting. These specifications have been submitted to the General Managers' Association for approval. This subject will be followed to a conclusion with that association.

Cross-tie Specifications

A recommendation was included in the 1936 report of the committee, to the effect that arrangements be made

suggesting a careful study of grades adopted by the West Coast Lumbermen's Association, to determine what particular grades are being used by the Western railroads. When this information has been obtained, the question of reducing the number of grades can be considered with the Mechanical Division. This proposal is made in the interest of standardization and progress, to harmonize the differences between the A.A.R. lumber specifications and those of the West Coast Lumbermen's Association by reducing the number of grades of lumber required for car repair and construction purposes.

The committee consisted of: A. J. Neault (chairman), assistant general purchasing agent, Chicago & North Western; H. O. Bush, general lumber and tie inspector, Erie; D. R. Elmore, assistant to general manager, Fruit Growers' Express; W. S. King, general tie and lumber agent, Chesapeake & Ohio; L. W. Kistler, superintendent of treating plants, St. Louis-San Francisco; E. H. Polk, assistant purchasing agent, Southern Pacific; G. H. Robison, purchasing agent, Union Pacific; H. E.



to which the A.R.E.A. tie specifications, adopted in 1926, and revised in 1934, are being used by the railroads.

Instead of requesting a joint committee with the Engineering Division, the committee this year investigated the subject, by questionnaire, and received replies from 92 railroads, 18 of which were using the specifications, and 74 were not. Some of the railroads are using the 1926 A.R.E.A. specifications and a number are using their own specifications. It is evident that at this time there is no general use of the specifications, and the committee has recommended that the Engineering Division be given the facts.

Car-Lumber Specifications

The committee gave further consideration to the recommendation included in the 1936 report, that a joint meeting be arranged with the Mechanical Division on A.A.R. specifications for car lumber, which particularly applies to West Coast woods. After further study, this committee decided first to refer the matter to the purchasing agents of the West Coast railroads,

Warren, manager, purchases and stores, Gulf, Mobile & Northern; James Young, assistant purchasing agent, Pennsylvania; C. C. Warne, (chairman ex-officio), purchasing agent, New York Central.

Discussion

C. P. Cherry (Penn.): Is it the sense of the report that we discontinue the A.A.R. specification because there are some objections from the West Coast?

A. J. Neault (C. & N. W.): No, we are working toward standardization, and are endeavoring to get all the groups together and standardize the A.A.R. specification.

Chairman Clifford: Since we have been working on the grain door specification and, incidentally, the crosstie and lumber specifications so diligently, I dislike to dismiss the subject this soon unless it is the thought that the committee will prosecute it further and draw up a new specification.

The report was accepted without further discussion and the meeting adjourned until Tuesday.

Mechanical Division Discusses Car Subjects

Monday's session is featured by an address by Hon. Frank McManamy and discussion of the Car Construction report

THE fourth session of the A.A.R. Mechanical Division was called to order by Chairman Burnett at 9:30 Monday morning. First on the program was an address by the Hon. Frank McManamy, mem-

ber of the Interstate Commerce Commission. This was followed by the presentation and discussion of the report on Car Construction, the first of the regular reports during this 16th annual meeting relating to car subjects.

Address of Hon. Frank McManamy

Mechanical improvements are the answers of this association to threatened loss of business to competing forms of transportation



F. McManamy

members of the Railway Supply Manufacturers' Association, indicating as it does improved business conditions, is an event in railroad history which is welcome to all of us. Seven years ago, speaking from this platform to the last convention which was held here, I said:

"We hear much about the probable future of the railroads and the possibility or even probability of the traffic being largely diverted to other means of transportation. It is always dangerous to attempt to forecast the future, but I see nothing in the present situation that threatens the future supremacy of the railroads in the transportation field. Like John Paul Jones, the railroads 'have not yet begun to fight.' When they do, they will get their share of the traffic and the public will get service of a character which is not now even dreamed of. I do not mean that the railroads will be able to drive competition from the transportation field, and they should not, but they will meet it with comforts, conveniences, and service, which for distances of more than 50 miles will be almost irresistible, and the public will be vastly benefited thereby."

Improvements Since 1930

Since that time the railroads have passed through a very trying period, but it has also been a period of great development, both in equipment and in service. I shall not attempt to enumerate the improvements in equipment—to do so it would be necessary to refer to almost every device in the Exhibition Hall because almost all are improved and many are entirely new—but such improvements as air-conditioned, stream-lined, Diesel-powered passenger trains, which operate at speeds of 100 or more

miles per hour, and high-speed freight service which includes store door pick-up and delivery of freight, are improvements which mark an epoch in railroad history and are the answers of the members of this Association to the threatened loss of business to competing forms of transportation. And this improved service has not resulted in increased costs to the public. Quite the contrary. Since 1930 the average rate per ton-mile has decreased from 1.063 cents to .903 cents, and the average rate per passenger-mile has dropped from 3.25 cents to 2.01 cents. The commission is in part responsible for the decrease in the rates per passenger-mile, but not for the decrease in the rates per ton-mile. That is partly the result of losing short haul traffic which take a higher than average rate per ton-mile and partly the result of voluntary rate reductions made to meet competition from other forms of transportation. The important point is the gross and net earnings of the railroads show a substantial recovery.

In one important respect, however, the record is not so good. I refer to the accident record. I shall not weary you with statistics, but to illustrate my point some recent examples must be given. I shall not include all of the different classes of persons, although the total will show that the trend is the same.

In 1935 there were 555 employes killed on duty, and 16,348 injured.

In 1936 there were 669 employes killed on duty, and 21,871 injured.

In 1935 the totals of all classes of persons killed and injured were: Killed, 5,107; injured, 28,080.

In 1936 the number killed was 5,398 and the number injured was 34,706.

Of course, in any comparison consideration must be given to the increase in traffic and in the number of employes. There were successive increases in the number of reportable train accidents each year since 1933, both in total and relative to traffic as shown by the ratio of accidents to train miles; in 1935 this ratio was 5.54 and in 1936 it was 6.27.

This is not given as a complete analysis of the accident records. It is given to show the trend and as the basis for the statement that it is the duty of the Commission to use all of the power conferred on us by the laws which we administer to stop the upward swing in the accident record and to start it in the opposite direction, and in this we invite and will expect your active and sympathetic cooperation.

The scope and importance of the work and responsibilities of this association are often not fully realized even by its members. Originally organized to bring about standardization of equipment, it, like all other railroad developments, has grown far beyond the wildest dreams of its founders; and I might say

at this point that standardization in relation to railroad equipment is a word that is much abused and often improperly used. To illustrate what I mean: The first recommendation ever made by this Association at a meeting of what was then termed the Car Masters, at Buffalo on April 19, 1866, was "That a committee of three be appointed to devise a plan to be presented at some future meeting for a uniform standard truck." And that same question is actively before this convention. This does not mean that the matter has been allowed to drag and has not received proper and effective consideration. Since that time many standards for car trucks, either in part or as a whole, have been developed and changed from time to time to provide adequate safety and to meet the needs of the service. To attempt to establish permanent standards would not be standardization, it would be strangulation.

The Development of Standard Rules

The development of standard rules and practices is an important part of the work of this association which has in fact become a very essential part of what the Supreme Court has termed the national transportation machine. It came into existence in part to meet a situation which was the inevitable result of the demands of the country for a more complete and efficient system of transportation. When in the interchange of traffic it became necessary for freight cars to leave the rails of their owners and move over other lines, rules and regulations providing for their movement, their use, and their return became essential.

One of the first duties of this Association was to provide such rules, from which have grown our present rules of interchange which govern the condition of and repairs to freight cars for the interchange of traffic. These were followed by loading rules, demurrage rules, car hire rules, and other rules and regulations governing car service which the law requires must be just and reasonable. This necessarily brought the government and Interstate Commerce Commission into the picture.

The Interstate Commerce Act, as originally passed by Congress on February 4, 1887, contained nothing with which this Association was directly concerned, as it applied almost wholly to matters related to rates. The Safety Appliance Acts of March 2, 1893, the Locomotive Inspection Act of February 17, 1911, and later acts regulating car service, made it the duty of each carrier to establish, observe, and enforce just and reasonable rules and practices with respect to safety and to service. This organization having undertaken the task of establishing such rules for all carriers it in effect became a law-making body

and it is charged with the responsibility on behalf of the railroads to establish, subject to the approval of the Commission, and observe just and reasonable and non-prejudicial rules, regulations, and practices. These duties created a situation which made it necessary for the Interstate Commerce Commission, representing the government, on behalf of the public to establish a direct contact with this Association to develop methods of administration which would effectuate the purpose of the law in the best possible manner at the least possible expense. To do this it has been found desirable in the interest of good administration of the law for the representatives of the Commission to participate to a limited extent in the various activities of this Association. As a matter of fact, that is especially provided for in some of the laws. In the beginning there was, of course, some friction, and occasionally the discussions developed more heat than light, but with experience came understanding and knowledge of each other's motives until the laws relative to the operation of railroads were being administered with a degree of cooperation and effectiveness which equalled if it did not surpass that between different departments of the same railroad. It is true, we still occasionally have differences which can only be ironed out by formal decision of the Commission after hearing, but with proper cooperation such instances should become less and less frequent.

Tribute to the Exhibit

I wish to pay my respects to the Railway Supply Manufacturers Association, which has done so much to make this meeting a success. They have placed at our disposal the most complete exhibit of railroad equipment and appliances that has ever been assembled. They too, along with the rest of the country, have passed through the serious business depression, but they have met it like good soldiers and while for long periods their plants were idle, their brains were not, and the results are here in the form of more new and meritorious devices than have ever been assembled at any previous convention, and if we all take advantage of the opportunities here available to improve our knowledge of new equipment and devices this will be one of the most profitable weeks which most of us will have spent during the year. We must remember, however, that we will get out of this meeting just what we put into it. If we came here solely for a good time, it will not benefit any of us nor those we represent. If we make proper use of the opportunities here afforded to improve our knowledge of railway appliances and equipment, it will return substantial dividends to all.

Report of Committee on Car Construction

Complete design for steel-sheathed wood-lined box car of increased inside dimensions presented and recommended for letter ballot



P. W. Kiefer
Chairman

In the face of the then situation it was submitted in last year's report that your committee might better devote all available time and energy to current problems exclusive of standard car work rather than to pursue this activity further unless the

Table I shows that slightly more than one-half of the cars built during the period covered were of the A.A.R. standard designs although it does not include 2,700 steel-sheathed refrigerator cars ordered as of April 1, 1936, following closely A.A.R. standards for underframe, center-sill section, 25 3/4 in. center-plate height and side construction, because at that time preliminary work only had been performed on the standard refrigerator car by the joint design committee. The present status of the work on the refrigerator car is covered elsewhere in this report.

member roads as a whole desired to support freight-car standardization and were prepared actually to do so by using basically the new designs when required. Further, this question had

Table I—New House and Hopper Cars Ordered During Period 1934 to April 1, 1936

Design	No. of cars	Per cent of total
A. A. R. throughout, or conforming closely thereto, including 128 lightweight alloy-steel to basic A. A. R. designs	21,308	50.90
A. A. R. except former standard center sill but with standard 25 3/4-in. truck center-plate height	1,550	3.70
Not A. A. R. except for standard Z-section center sill and standard 25 3/4-in. center-plate height	2,010	4.79
Former A. A. R. tentative design	250	.60
Not A. A. R.	16,742	39.95
Miscellaneous and not investigated	27	.06
Grand total	41,887	100.00

reached the stage where renewed consideration as to future procedure had become imperative.

The following resolution was then offered and passed: "Resolved, that this whole question be laid before Mr. Symes with request that he call it to the attention, as forcibly as possible,

not only of the executive committee, but also of the board of directors of the Association."

Prompt action was taken on this resolution with result that the president of the Association sent an inquiry to the executives of member roads for advice, first as to whether the standard car designs could and would be adopted, and second, if this was not found desirable, to give for the benefit of all concerned, the reasons therefor.

This was done under date July 25, 1936, and while 86 roads answered, the responses for the most part were inconclusive and no replies were received from fifty-six of those addressed. However, it is believed this might be accounted for, at least in part, by the growing necessity for increasing the inside dimensions of the box car.

The needs of this situation are fully realized and consequently at the request of your committee, arrangements were consummated during March of this year by the executives of the A.A.R. and those of the A.R.C.I. to have prepared a new design of box car having clear inside dimensions of 9 ft. 2 in. wide, 10 ft. high at eaves and 40 ft. 6 in. long. The design is submitted in Appendix A to this report. (Only the drawings of the car with the builders' designs of roofs, ends and doors are here reproduced from the appendix.—Editor).

A second letter from the President of the Association was released under date March 5, 1937, to the member road executives briefly outlining results of the first check and advising that a new set of drawings for the larger box car soon would be completed. In view of the change in the box-car design situation, this letter requested advice as to whether the cars thus far adopted as standard by the Association, either to the original or the enlarged dimensions and the 50- and 70-ton nominal capacity hopper cars, could or would be adopted when cars of these types are required. Replies to this letter will be analyzed and summarized and presented to the members in connection with the presentation of this Committee's report at the annual meeting.

Table II for house type and hopper cars combined, ordered from April 1, 1936, to May 25, 1937, has been set up in the same form as Table I in order to indicate by direct comparison, difference in per cent covered. Table I shows that approximately 50.90 per cent of the total were A.A.R. throughout or closely conforming thereto, whereas for cars in Table II this per cent increased to **88.59**.

Table II—New House and Hopper Cars Ordered April, 1936 to May 25, 1937

Design	No. of cars	Per cent of total
A. A. R. throughout, or conforming closely thereto, including 1,850 lightweight alloy-steel to base A. A. R. designs	46,974	88.59
A. A. R. except former standard sill but with standard 25½-in. truck center-plate height	725	1.37
Not A. A. R. except new standard center-sill section and standard 25½-in. truck center-plate height	525	.99
Not A. A. R.	4,800	9.05
Grand total	53,024	100.00
Under investigation	6,300	

Joint Report on Design of Box Car Having Increased Inside Dimensions

During the past two or three years owing to changes in conditions and improvements in operating clearance conditions, there has been a decided trend toward the construction and general operation over main lines of box cars of larger dimensions, for which there is an increasing demand. As a result of further investigations, including canvass of member roads and principal car builders, the decision was reached to increase the inside width and height dimensions of the standard box car to the maximum consistent with unrestricted main-line operation, maintaining the same general type of construction and the same provisions with respect to the use of specialties and alternates as in the original design.

Arrangements were made for revision of the drawings and the matter was placed in the hands of a joint sub-committee consisting of representatives of the Car Construction Committee and the A. R. C. I. After making a complete check of the superstructure and underframe, and taking into consideration the excellent performance of the present design as demonstrated through extensometer, deflectometer and impact tests, as well as severe road service tests, also the satisfactory performance of several

thousand cars of the present design in actual service, the joint sub-committee reached the conclusion that the same general construction with present sizes of superstructure and underframe members would be of adequate strength for incorporation in car of larger dimensions, and this procedure was followed in preparing new general and detail drawings for a car having inside clear width and height at eaves increased to 9 ft. 2 in. and 10 ft., respectively.

To provide brief comparison of the two designs the following table has been prepared, from which it will be noted that the car to the larger dimensions in carbon steel, riveted construction and with Grade B cast-steel truck sides and chilled-iron wheels, will have an estimated increase in weight over the 1932 design of approximately 1,200 lb. The weights given for the larger car are estimated and will vary with the types of specialties used.

	Original 1932 Design	New 1937 Design
Inside length	40 ft. 6 in.	40 ft. 6 in.
Inside width	8 ft. 9½ in.	9 ft. 2 in.
Inside height at eaves	9 ft. 4 in.	10 ft. 0 in.
	40-ton car	50-ton car
Light weight of body, lb.	28,500	28,500
Trucks per car, with chilled iron wheels and Grade B cast-steel truck sides and bolsters, lb.	14,150	15,600
Total weight, lb.	42,650	44,100
Capacity, cu. ft.	3,311	3,311
	40-ton car	50-ton car
	14,150	15,600
	43,850	45,300
	3,711	3,711

Drawings for the original 1932 design car are being retained in the Supplement to the Manual so as to be available to any road desiring to build cars to the smaller inside width and height dimensions. These drawings have been revised where necessary to incorporate detail changes agreed upon as a result of further experience in the construction and operation of cars and otherwise bring them up to date, indicating where constructions or parts are common to both designs.

Recommendation is made that the drawings and specifications included in Appendix A be submitted to letter ballot for adoption as standard practice and inclusion in the Supplement to the Manual of Standards and Recommended Practices.

The report is signed by T. P. Irving, (Chairman), and F. A. Isaacson, for the Committee on Car Construction, and by R. W. Thompson, and W. H. Mussey, for the American Railway Car Institute.

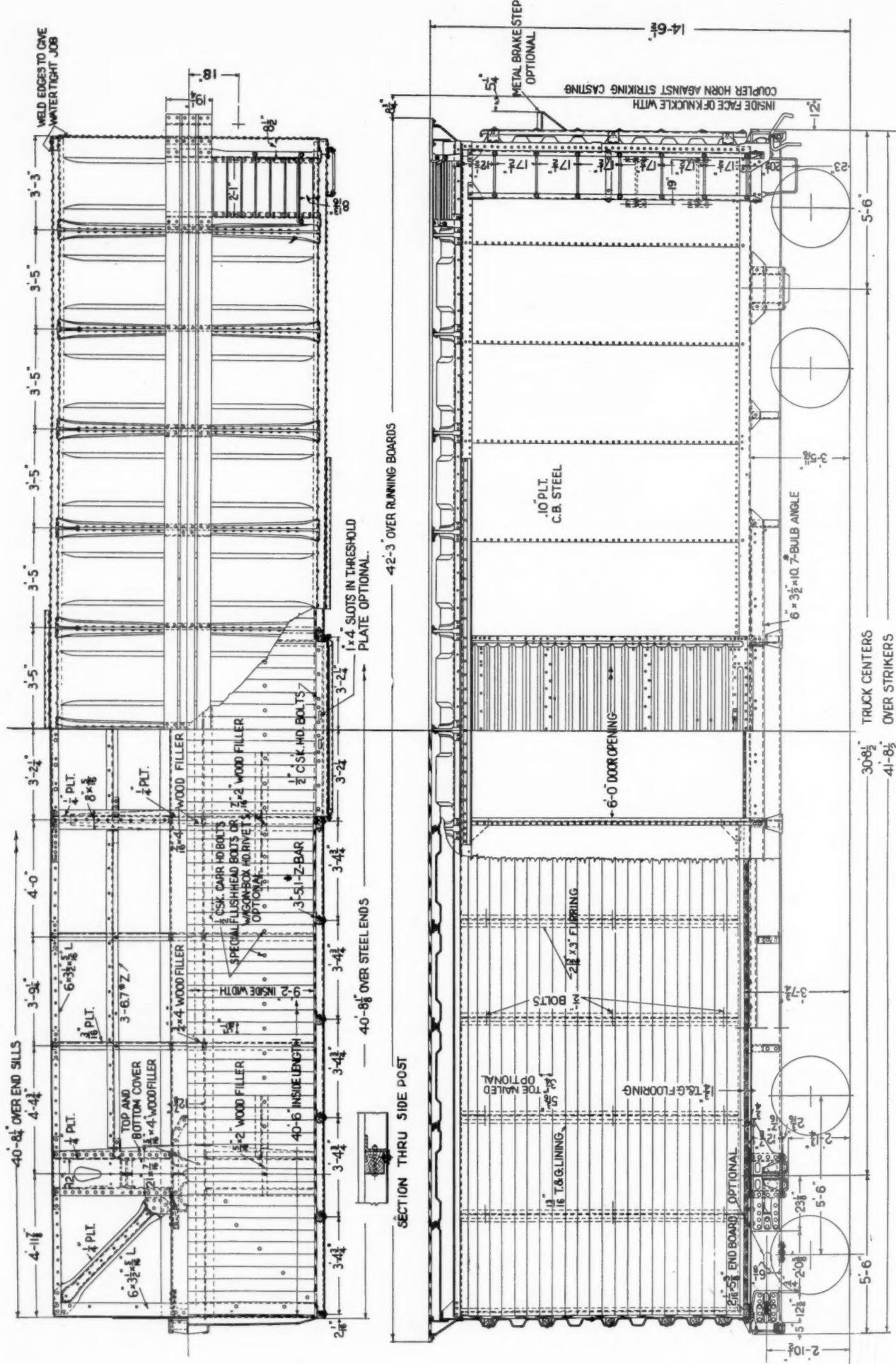
Standard Hopper Cars

As result of experience gained in the construction of several thousand A. A. R. standard self-clearing hopper cars, certain detail changes were found necessary or desirable and after due consideration by the Design Committee of the American Railway Car Institute and the full Car Construction Committee, certain changes were made in the A. A. R. standard drawings: (1.) Relocate and change defect card board to defect card receptacle to comply with recently adopted requirement for a metal receptacle. Floor brace angle at top formed to serve as connection, replacing separate ¾-in. plate. (2.) Coping omitted from side and end top bulb angle above ladders. (3.) Bolster and center-sill top connection angle changed from 3½ in. by 3½ in. by ¾ in. to 3½ in. by 3 in. by ¾ in. (4.) Rivets relocated in center sill and in bolster and center sill top connection, account reduction in size of angle. (5.) Hole spacing for bolster and center-sill top connection changed from 2½ in. to 12½ in. account reduction in size of the angle. (6.) Contour of top front edge of bolster center filler changed to provide clearance for draft-gear follower. (7.) Top edges of bolster center filler chamfered full length, instead of rounded, to facilitate machining. (8.) Machining of yoke contact face of bolster center filler eliminated. (9.) Side-bearing stiffener construction changed to reduce number of thicknesses through which bottom horizontal rivet passes, from seven to five. (10.) New drawings for front and back side bearing stiffeners account changes in construction, referred to under (9).

This report was signed by T. P. Irving

Impact, Extensometer and Deflectometer Tests of Lightweight Box Cars

As requested by the Committee on Car Construction of the Mechanical Division Association of American Railroads, the Di-



Steel-Sheathed Wood-lined Box Car with a Clear Inside Width of 9 Ft. 2 In.; Height of 10 Ft. at Eaves, and Length 40 Ft. 6 In.—The Drawing Shows the Base Car

vision of Equipment Research has completed impact tests of two experimental lightweight box cars: (a) Car, built by Pullman-Standard Car Manufacturing Company, of Cor-Ten steel with extensive use of welding weighing 34,200 lb. (b) Car, built by Mt. Vernon Car Manufacturing Company, of Cor-Ten steel with riveted construction throughout, weighing 36,400 lb.

The impact tests of the Pullman car were made on the Monon tracks at Michigan City, Indiana, during the period January 1 to March 15, 1936, and those of the Mt. Vernon car were made at the Monon Shops, Lafayette, Indiana, during the period September 1 to October 15, 1936.

The Division of Equipment Research was requested to study the results of extensometer and deflectometer tests of the Pullman

lb. less than the A. A. R. standard car No. 5, a reduction in weight of 17.8 per cent. The Mt. Vernon car is 2,200 lb. heavier than the Pullman car. The trucks of the A. A. R. car weigh 15,700 lb. and those of the Mt. Vernon car 13,660 lb., a reduction of 2,040 lb.

EXTENSOMETER AND DEFLECTOMETER TESTS OF THE PULLMAN CAR

(a) The Pullman car was stressed more uniformly and less than the A. A. R. standard car when taking into consideration the difference in yield points between Cor-Ten steel and regular open hearth steel.

(b) The deflections of the principal structural members under vertical load were greater on the Pullman car than on the A. A. R. standard car, which is to be expected with high-tensile alloy steel. However, the deflections were within reasonable and satisfactory limits.

(c) No peaks of concentrated stress in the Pullman car were disclosed and in general the design may be considered well balanced.

IMPACT TESTS OF PULLMAN CAR

It was necessary to repair this car after the 10th, 16th, 21st and 24th impacts, the maximum speeds of these series of impacts being 8.4, 13.0, 13.9, and 16.0 m.p.h. respectively. Since the Pullman car had several features not contained in the A. A. R. car (although the latter was the basis of the design), such as welding, the use of high-tensile alloy steel with lighter sections and the flat type ends, it is practically impossible to determine definitely the cause of the results obtained with this car in the impact tests. It is believed, however, that the following were contributing factors:

Spot-Welding and Fillet Welds—It is evident from a review of the test results that many of the directions in which the performance of this car was unsatisfactory were due to the failure of welds. The percentage of failures due to improper welding technique could not be determined. It is recognized, however, that welding as used in the construction of this car was in a large degree experimental. Improvements in the welding art have progressed to a point that will reduce such weaknesses as occurred in the welding of this car.

Bending of Coupler—The bending of the alloy-steel coupler, resulting in the coupler horn striking the striker at the higher impact speeds, undoubtedly was responsible for a large amount of the damage to the underframe.

Flat Type End—It was here that the first evidence of marked weakness appeared and, notwithstanding the reinforcements applied during the progress of the tests, it continued to be a weak member of the car structure. The failure of the end contributed to failures and distortion elsewhere in the structure.

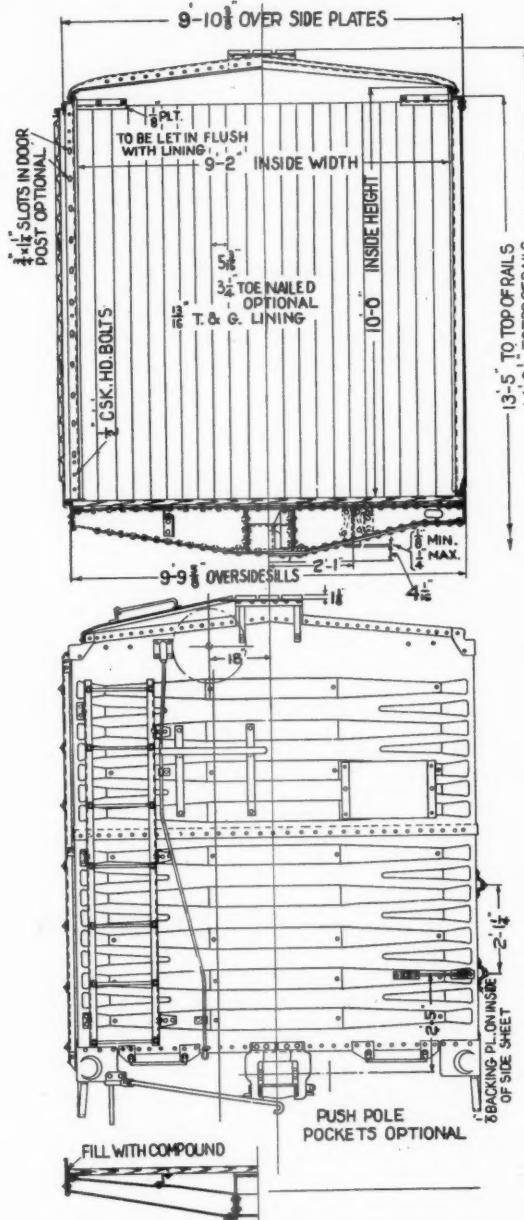
Type of Stiffener Used in Side Sheets and Roof Sheets—The stiffener design consisted of two $\frac{1}{2}$ in. deep corrugations in each side sheet extending vertically from side sill to side plate, and two similar corrugations in each roof sheet extending across the car. The results of the impact test clearly indicated that this type of stiffener was not sufficiently effective for the thickness of the sheets (0.05 in.) used on this car. An improved design of stiffener would have reduced the amount of buckling in the roof sheets and the amount of waviness in the side sheets.

With the modifications in design indicated as being necessary, and with the application of developments in the welding technique of Cor-Ten steel as required, a car of this type would warrant consideration.

IMPACT TESTS OF MT. VERNON CAR

The Mt. Vernon experimental lightweight car was not submitted to extensometer and deflectometer tests.

The principal feature in which the Mt. Vernon car differed from the A. A. R. standard car was in the use of Cor-Ten steel with reductions in sections to give approximately equal strength. It was necessary to repair the Mt. Vernon car after the 20th, 22nd, 26th and 36th impacts, the maximum speeds of these series of impacts being 11.0, 11.7, 16.4 and 15.8 M. P. H. respectively. The damage developing during the impact tests was in general concentrated in the underframe, with the exception of the bulging of the end sheets, distortion of end roof sheets and



Cross-Section and End Elevation of the New Car Design

car made by the Pullman-Standard Car Manufacturing Company.

The light weight of the Pullman car is 34,200 lb. or 9900 lb. less than the A. A. R. standard car No. 1, a reduction in weight of 22.5 per cent. The light weight of the A. A. R. car No. 1 is 44,100 lb.

The trucks of the A. A. R. car, included in the above total, weigh 15,700 lb. and those of the Pullman car 13,960 lb., a reduction of 1,740 lb., or 11.1 per cent. The cross-sectional area of the Pullman center sill is 16.96 sq. in. and that of the A. A. R. car is 21.3 sq. in., a reduction of approximately 20 per cent.

The light weight of the Mt. Vernon car is 36,400 lb., or 7,900

waves in the side sheets. It is believed that the following changes would contribute to an improved performance of this car.

Body Center Plate—Eight $\frac{5}{8}$ in. Cor-Ten steel rivets were used to hold the center plate to the body bolster. It is felt that these rivets should be increased to $\frac{7}{8}$ in. diameter and the center plate made somewhat heavier.

Body Bolsters—The major portion of the damage to the underframe occurred in the body bolsters. It is felt that the bolsters should be strengthened to overcome the distortion developed in the bottom cover plate near the bottom flange of the center sill, at the side bearing, and at the side-sill connections.

The Mt. Vernon car, from the point of view of construction, has sufficient merit to warrant favorable consideration.

In the near future final reports are to be submitted to the Committee on Car Construction for approval, after which copies will be circulated to the Mechanical Division Membership.

This report was submitted by L. W. Wallace, director of equipment research.

Side Frames and Bolsters

During the past year the new designs of cast steel side frames which successfully passed both static and dynamic tests and were approved for use in interchange service, may be summarized as follows:

NEW DESIGNS OF SIDE FRAMES APPROVED

Material	Capacity	Type
1 Alloy steel	50-ton	Spring plankless.
1 Alloy steel	50-ton	With spring plank.
1 Grade B carbon steel	50-ton	Spring plankless.
1 Grade B carbon steel	70-ton	With spring plank.
1 Grade B carbon steel	90-ton	With spring plank.

New bolster designs which successfully passed static tests and were approved are listed below:

NEW DESIGNS OF BOLSTERS APPROVED

1 Alloy steel	50-ton	Spring plankless.
2 Alloy steel	50-ton	With spring plank.
1 Alloy steel	70-ton	With spring plank.
3 Alloy steel	90-ton	With spring plank.
1 Grade B carbon steel	40-ton	Spring plankless.
1 Grade B carbon steel	50-ton	Spring plankless.
1 Grade B carbon steel	70-ton	Spring plankless.

Applications for approval pending on the date of this report include:

APPLICATIONS PENDING—SIDE FRAMES

1 Alloy steel	50-ton	With spring plank.
1 Alloy steel	70-ton	With spring plank.
2 Grade B carbon steel	40-ton	Spring plankless.
1 Grade B carbon steel	70-ton	Spring plankless.

APPLICATION PENDING—BOLSTER

1 Grade B carbon steel	40-ton	Spring plankless.
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In addition to the cast-steel side frame and bolster designs listed above, an application has been received from the United States Steel Corporation for approval of new designs of pressed and welded rolled steel side frame and bolster, both for cars of 50 tons nominal capacity. The bolster has successfully passed static tests conducted by the sub-committee and has been approved for use in interchange service to the extent of 50 car sets. Because of the lack of previous satisfactory experience with bolsters and side frames fabricated in this manner, the manufacturer was entirely agreeable to this temporary limitation. Arrangements have been made for static and dynamic fatigue tests of the side frame but these have not yet been conducted.

Also inquiries have been received from the Bethlehem Steel Corporation and the probability is that new designs of welded rolled-steel bolsters and side frames will soon be submitted by that company for approval.

The attention of both of these manufacturers has been called to the fact that bolsters and side frames of cast steel only are provided for in the tentative requirements published last year. On account of previous adverse experience with welded rolled-steel side frames, although admittedly the art has progressed materially since that time, it will be necessary for these frames to pass the static and dynamic tests for cast-steel side frames and the bolsters must meet the static test prescribed for cast-steel and pressed steel bolsters, after which the welded side

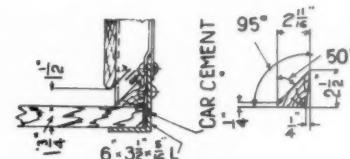
frames and bolsters should be subjected to a service test before being approved for unrestricted interchange service.

The report of the sub-committee was signed by H. W. Faus, chairman, T. P. Irving, and T. D. Sedwick.

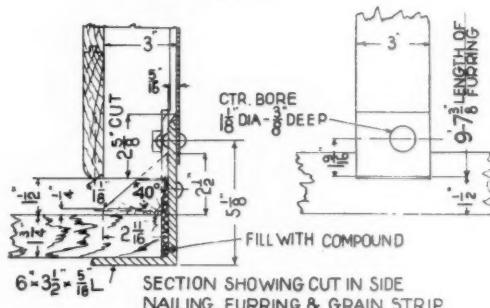
Non-Harmonic Truck Springs

The various devices tested by the sub-committee were placed in service, two car sets of each, under General American Transportation Company's refrigerator cars to obtain comparative information as to endurance qualities. These tests have since been completed, the test springs and special trucks having been removed either because of failure or on account of the cars to which they were applied having accumulated 50,000 service miles. After a final examination and calibration in the laboratory, the test springs and special trucks were returned to the manufacturers.

A complete final report covering the road, laboratory and endurance test is now being compiled. It is expected that this re-



APPLICATION AND SECTION OF GRAIN BEVEL STRIP



SECTION SHOWING CUT IN SIDE NAILING, FURRING & GRAIN STRIP

Nailing-Strip Details of the New Car of Increased Inside Dimensions

port will be completed in the near future, copy of which is to be furnished all voting members of the Association.

The sub-committee's report is signed by F. A. Isaacson (chairman), T. P. Irving and H. W. Faus.

Trucks for Load-Carrying Cars in Passenger Service

The present conventional equalized swing-motion passenger truck for main-line service is relatively expensive and heavy and although up to the present time its use has been fully justified, the need for its equivalent in operating and tracking characteristics but at lighter weight and less cost, is now before the railroads. During the past two or three years certain substitutes for the equalized swing-motion design have been submitted to your committee and over a much longer period differences of opinion have existed among some railroads as to the need for the present design.

In view of the possible savings in weight and cost but at the same time keeping in mind the necessary track and operating characteristics for load-carrying cars in passenger trains, the committee has proposed this as a subject for research through A. A. R. channels to determine specifically the value, first, of swing motion and, second, of separate equalization.

The Director of Equipment Research received instructions from the General Committee to formulate, in cooperation with the Committee on Car Construction, a suggested program of road tests designed to develop the facts with estimates of costs and probable time and personnel required and with provision for the cooperation and assistance of the truck-manufacturing and car-building industries.

As soon as this program is worked into shape satisfactory to

the Research Director and your committee, it is to be submitted to the General Committee for consideration.

Spring Planks for Freight-Car Trucks

The sub-committee on spring planks for freight-car trucks is continuing to survey the situation as outlined in the 1936 Annual Report of the Committee on Car Construction and find that a good deal of the trouble has been overcome with more attention given to proper clearance of the spring plank in side frames and on spacing bosses to provide freer movement of the spring plank with relative movement of the two side frames. This, together with improvements that have been made in design, either by increased flexibility of the spring plank itself or by use of the three-piece type, seems to have pretty well overcome the difficulties that led to the appointment of the sub-committee.

No further action is contemplated beyond continuing to follow the service secured from various types of spring planks.

This report is signed by F. A. Isaacson, chairman, W. A. Newman, R. H. Graff, T. P. Irving.

Passenger-Car Axles

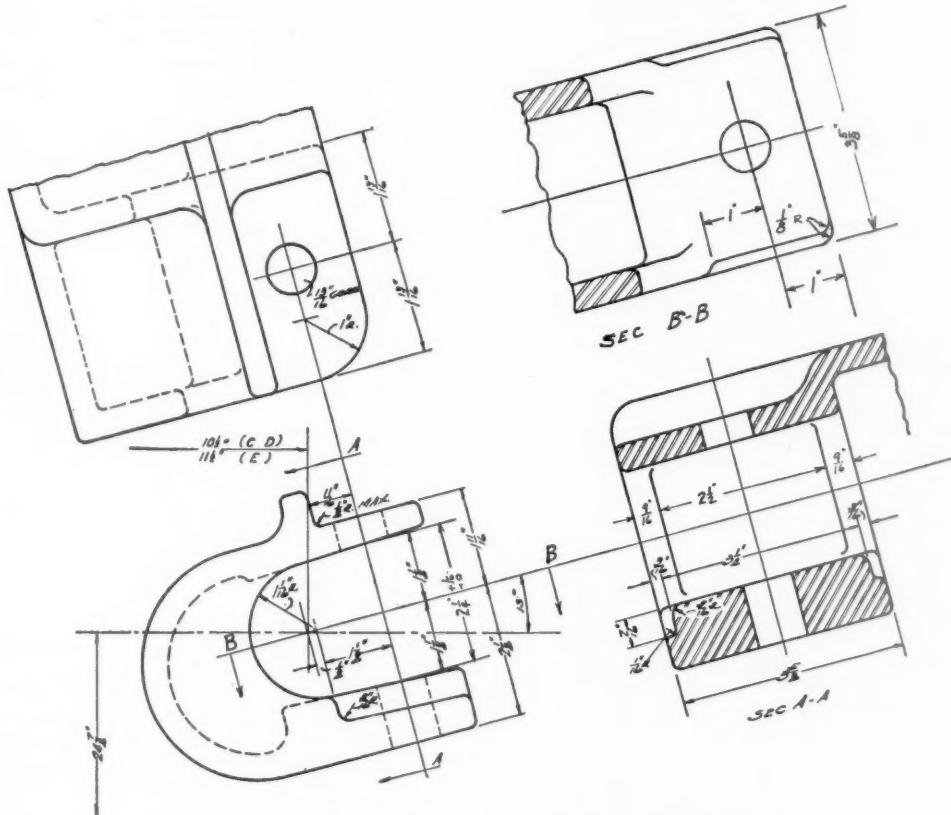
On account of increases in axle loads due to installation of air conditioning and related improvements in existing equipment, in-

next larger size, the importance of providing a better grade of material was recognized and this phase of the matter was, therefore, included in the subsequent studies of the joint sub-committee. One large road reported conclusion reached several years ago that definite improvement in the quality of material and manufacturing practices for passenger-car axles was required and the study of this situation culminated in the adoption about 12 years ago of a new specification which since has been used with very satisfactory results. No failures of axles to this specification, because of material or manufacturing defects, have since occurred.

The joint sub-committee desires to emphasize the importance of good workmanship in the manufacture and machining of axles as well as in the mounting of wheels, drive pulleys and other attachments thereon.

As a result of the investigations conducted it is the recommendation of the Joint Sub-Committee that the design of axle for main-line passenger service be modified by increasing the center portion (between dust-guard seats) of the present A. A. R. standard axles to the next larger size, maintaining the present standard journal centers and other journal and dust-guard seat dimensions, also that material used for this purpose be in accordance with A. A. R. Specification M-104-34 covering Class A carbon-steel normalized and tempered steel forgings.

For the selection of proper size axle it is recommended that the static load be limited to 85 per cent of the A. A. R. rated



Proposed Truck-Frame Brake-Beam Hanger Bracket

Increased train speeds and related changes in operating conditions, the necessity of providing axles of increased strength and reliability is apparent.

As a result of analysis of reports of axle breakages and other information available, special attention was given by the joint sub-committee to increasing the strength in the wheel-seat portion of the axle. It was found impracticable to bring this about through changes in the wheel design or reductions in mounting pressures; therefore, the studies were proceeded with on the basis of increasing the size of axle between dust-guard seats, maintaining present journal centers, consistent with programs adopted by several member roads and one large passenger-equipment operator, all of whom had arrived independently at the same conclusions.

In addition to stepping up the center portion of axle to the

capacity for freight axles of corresponding journal sizes. On account of the extreme importance of the design of passenger-car axles, the General Committee has decided that this subject should be thoroughly studied, which is in progress at the present time.

The report is signed by B. S. Brown, *chairman*, T. P. Irving, and K. F. Nystrom, for the Committee on Car Construction; by T. D. Sedwick for the Committee on Specifications for Materials, and by A. M. Johnsen, for the Committee on Wheels.

Revision of Inter-Change Rule 86 to Compensate for Various Weight Wheels Now in General Use

As a part of the annual report for last year, proposed revision of Rule 86 was submitted. Decision was reached to refer this

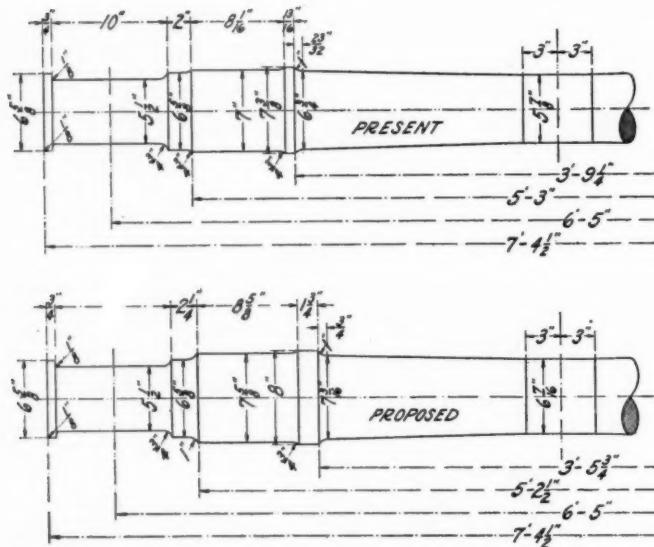
report to the Arbitration Committee for further study and subsequently a sub-arbitration committee was appointed to work with this sub-committee. Later the former proposed a modification of Rule 86 which it considered more practicable than the one suggested by the sub-car construction committee, the main objection to proposal from the latter relating to anticipated difficulty in the determination of wheel-rim thickness. During meeting of the two sub-committees, in March, it was arranged that certain data on average weights of the various kinds of wheels involved would be furnished the sub-arbitration committee, after which further joint sub-committee meeting would be held.

The data has been provided but in view of the importance of this matter and the difficulties encountered in arriving at a proper solution of the problem, it was unanimously agreed that before another revised rule would be submitted to the Mechanical Division for action, full agreement between the Arbitration and Car Construction Committees would be necessary, which, in turn, would require joint conference of these two committees. Insufficient time was available for this work and consequently progress report only is submitted at this time.

The report is signed by B. S. Brown, chairman, K. F. Nystrom, and T. P. Irving.

Definitions and Designating Letters for Freight and Passenger Cars

During the year requests have been made for new recommended-practice designating symbols and definitions to cover



Present and Proposed 5 1/2-In. by 10-In. Axle—Axles of Other Sizes Treated Similarly

steel-underframe box car equipped with tanks for the transportation of liquid commodities and for combined baggage and buffet car.

The following new symbols and definitions are recommended: CAD—Combined Baggage and Buffet—A two compartment car, one compartment suitable for baggage and express, the other provided with couch seats or chairs and equipped with buffet.

XT—Tank Box—A house car with or without doors, either metal lined or enclosing one or more tanks, to hold water or other liquids.

This report was signed by C. E. Adams.

Provisions of Interchange Rule 3 With Respect to New Designs of Freight Cars

Last year we stated the full committee had been called upon to check for approval or other disposition with respect to safety and suitability for interchange service, in accordance with first

paragraph of Interchange Rule 3, some twenty different designs of freight cars and these were listed by ownership and car types with record of disposition in each case.

This work continues to require the active attention of your committee and during the current year under this classification, nine designs with trucks were so reviewed.

Method Of Attaching Brake-Beam Hangers To Side Frames

In the A. A. R. brake-hanger bracket cast integrally with truck side frame, as shown on page 6-B, Section E of the Manual, and on plate 29 of Supplement to the Manual, no provision is made for the use of wear blocks or liners to relieve the bracket of direct wear caused by the brake-beam hanger. Recognizing the importance of eliminating excessive wear at this point, a new design of bracket has been developed, as shown in one of the illustrations, having the size and shape of the opening to accommodate proprietary devices now available and incorporating provision for securing the wear blocks or liners in position by means of a single $\frac{3}{4}$ -in. cotter or bolt in lieu of hairpin cotter.

The design of bracket has also been strengthened by increasing the thickness of the lower part of the jaw from $\frac{5}{16}$ in. to 1 in.

The specialty manufacturers have cooperated in the development of this design, which has also been approved by the Committee on Brakes and Brake Equipment.

It is the intention to submit this design to letter ballot and, if approved, the drawings in the Manual will be changed accordingly.

This report is signed by G. S. Goodwin, chairman, and T. M. Cannon.

Journal Boxes and Details

ROOF OF JOURNAL BOX

In the annual report for 1935 mention was made as to wear in the ceiling of journal boxes. After an inspection of approximately 2,000 boxes the following conditions were observed on certain large railroads: 30 per cent showed $\frac{1}{4}$ -in. wear at center; 51 per cent showed $\frac{1}{2}$ -in. wear at center; 11 per cent showed $\frac{1}{16}$ -in. wear at center; 8 per cent showed $\frac{3}{32}$ -in. wear at center, or an average of about $\frac{3}{64}$ -in. wear.

The sub-committee found this condition was not as bad as first anticipated and in view of the fact that the above check included separate boxes and side frames of both new and old designs, it is not considered that the wear as indicated above would justify any changes at this time.

DIAMETER OF OPENING AT BACK END OF BOX

It has been found under certain conditions that back fillets on journals are peened over and damaged due to insufficient clearance between the inner dust-guard wall in the journal box and the dust-guard seat on the journal, brought about by impacts and brake applications which cause the journal box to contact the axle.

The diameter of the hole in the back wall of journal boxes is larger than the hole in the inner or dust guard wall in the box. We recommend that the hole in the inner wall be made the same diameter as that in the outer wall so that a uniform clearance is obtained on both openings.

It is recommended that the changes pertaining to the opening at back end of box be submitted to letter ballot and, if approved, the drawings in the Manual and Supplement to the Manual will be revised accordingly.

METAL DUST-GUARD CAP

To permit the optional application of a metal dust-guard cap instead of the present wood plug, your sub-committee recommends that a tapered portion on the top side of the box opposite the dust guard opening be provided.

It is recommended that the above be submitted to Letter

Ballot, and, if approved the drawings in the Manual and Supplement to the Manual will be revised accordingly.

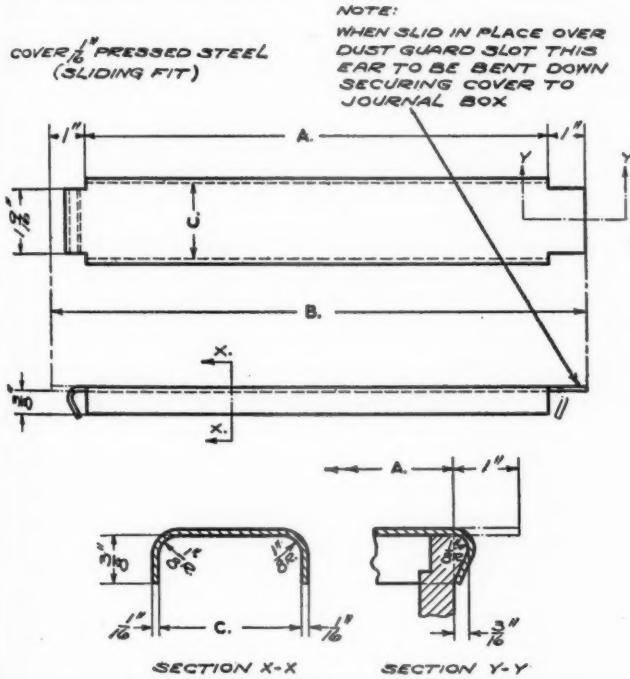
HOT BOXES

As no railroads are entirely free from heating of journals, your committee when looking into wheel-mounting and axle-turning practices, with a view of improving conditions, observed that second-hand axles have been found with overall length to vary from $\frac{1}{8}$ in. under to $\frac{7}{16}$ in. over the size given in the A. A. R. Wheel and Axle Manual. Care should be exercised in purchasing new axles of proper length.

As it is general practice to gage from the end of the axle in turning journals and wheel seats, it can readily be seen that an axle too long or too short will affect the journal centers and cause undue friction and wear on both the front and back of the bearing and journal, often resulting in hot boxes. When turning axles it would be difficult to gage from the center instead of from end, therefore it is important that new axles be made to proper length.

The mounting of wheels as called for in the Wheel and Axle Manual, which requires the use of an equi-distant gage and wheels mounted from center of axle, is a very important practice and would do much to prevent hot boxes as well as flange wear

A, B & C DIMENSIONS TO SUIT BOX



Proposed Dust Guard Cover and Locking Tip

of wheels if properly followed. Regardless of the importance of properly mounting wheels, there are still some roads who do not use the equi-distant gage but use badly worn gages, either wood or metal, and gage from end of the axle for the application of the first wheel.

The sub-committee would also call attention to improper wheel boring as our investigation developed that some wheels have been bored out of round as much as 0.145 in.

This report was signed by J. McMullen and K. F. Nystrom.

Operation of Open-Top Cars Through Car Dumping Machines

Damage to open-top equipment as the result of being handled through car-dumping machines is a subject of long standing but now has become of increased importance because of the rapid introduction into service of cars of new design, particularly those of light-weight construction having relatively thin side sheets and inside stakes and others equipped with the bulged or panelled sides.

There are approximately 81 machines operating in the United

States. 45 are railroad owned whereas 36 are owned by other industries.

Figure 1 illustrates typical arrangements of blocking in relation to the car side as used on these machines.

It may be said that practically none of the dumping machines was found to have the A. A. R. arrangement of blocking and in numerous cases the blocking in use is of such size, design and arrangement as to provide only a small bearing or support for the car side as a whole. This applies both to the railroad and industrial machines.

Due to wide variations in present arrangements, costs to make the needed changes may vary considerable and for this reason no estimated figures are here presented. However, considering the large number of cars normally handled through each machine, the expense involved is relatively very small and fully justified.

Last December the results of your committee's study were brought to the attention of the Operating and Maintenance Department, A. A. R., and shortly thereafter the required action was initiated by that department with the railroads and industries involved for the purpose of having completed at an early date, changes in blocking arrangements necessary to eliminate damage to open-top equipment. At the same time arrangements were made to have representatives of the Car Service Division, A. A. R., follow these alterations to a conclusion in the field.

It is strongly urged that corrections be made promptly to any machines not yet changed because of the large number of cars which otherwise would continue to be subject to this damage.

The report is signed by P. W. Kiefer (chairman) chief engineer motive power and rolling stock, New York Central System; T. P. Irving (vice-chairman), engineer car construction, Chesapeake & Ohio; W. A. Newman, chief mechanical engineer, Canadian Pacific; F. J. Jumper, general mechanical engineer, Union Pacific; J. McMullen, superintendent car department, Erie; F. A. Isaacson, engineer car construction, Atchison, Topeka & Santa Fe; G. S. Goodwin, assistant general superintendent motive power, Chicago, Rock Island & Pacific; E. B. Dailey, engineer car construction, Southern Pacific; B. S. Brown, general foreman, Pennsylvania; K. F. Nystrom, superintendent car department, Chicago, Milwaukee, St. Paul & Pacific; H. E. Myers, master car builder, Lehigh Valley, and H. L. Holland, assistant engineer, Baltimore & Ohio.

Discussion

(The report was presented by sections, each section being read by the chairman of the sub-committee in charge of its preparation. P. W. Kiefer was in the chair.—EDITOR.)

DESIGNS OF STANDARD CARS

(Mr. Kiefer offered, for inclusion in the report, Supplement No. 1 and No. 2. Supplement No. 1 included certain corrections to the tables of freight cars ordered during period 1934 to May 25, 1937, while Supplement No. 2 summarized the replies from 114 companies on the adoption of standard cars and, where objections were cited, gave the reasons for not having adopted the standard design.)

E. J. Robertson (Soo Line): The present standard A.A.R. car is so well designed to prevent the entrance of dirt, rain, snow, etc., that it has resulted in aggravating another condition that has given us trouble for considerable time. This car, with its air-tight joints and practically air-tight doors, is an almost air-tight car, and, while this is a splendid feature for high class lading, it allows practically no ventilation, which results in more condensation when hot lading is loaded during the winter season.

With the operation of the average per diem plan, we find that box cars are away from the home roads a much larger proportion of their time than when they were on the \$1.00 per diem rate. This applies particularly to cars that are in condition for high class lading; therefore, the necessity for a standard car is more pronounced than ever before.

A standard car should be designed to carry any kind of lading usually loaded in box cars at any period of the year. The proposed standard car built to the larger dimensions meets practically all requirements when it is equipped with an insulated

roof. Under the present specifications, the roof insulation is optional.

Last year the Soo Line purchased a number of A.A.R. standard box cars built to the proposed dimensions, i.e., 42 feet 6 inches long, 10 feet high and 9 feet 2 inches wide. These cars were built with insulated roofs, and this has been our standard for many years. Our line originates large quantities of flour products in the Minneapolis territory and many shipments of paper in the Wisconsin and Michigan territories. The flour, as a rule, is loaded direct from the milling machines to the cars at a high temperature, 90 to 95 deg. F. being quite common. Much of the paper is also loaded direct from rolls to the cars at a fairly high temperature during the winter months. Lading such as this is subject to considerable damage, due to condensation, when loaded in box cars equipped with roofs not insulated.

Experience has shown that the A.A.R. car with roof not insulated is more subject to condensation than most other designs on account of lack of ventilation. Many of the shippers will not load hot flour or cereals in box cars that do not have the roofs insulated during the winter months, and it is not only the flour and cereal shippers that want the insulated-roof cars. Shippers of furniture, veneer products, tin cans, stoves, and many other articles prefer such cars. A number of the large flour and cereal distributors specify that their shipments must be loaded in insulated roof cars. On account of this, we have found it profitable to insulate the roofs on all our box cars.

Two years ago a committee, of which I was a member, presented a report on condensation in box cars at the annual meeting of the Association, but the report did not recommend the insulation of roofs. No exceptions were taken to the report at the time it was presented, but experience gained since the report was presented would warrant my recommending to the committee further consideration of the insulated roof as a requirement of the standard car.

The only trouble we have experienced so far with our A.A.R. cars is an occasional car returned from connecting lines with door fixtures damaged. The door fixtures, being the widest part of this extra wide car, have apparently been raked at loading or unloading platforms where the clearances are insufficient.

G. W. Ditmore (D. & H.): It is noted that the committee now advocates a car of greater height and width than the dimensions adopted as standard for the 1932 design on the ground that there is evidence of an increasing demand for larger cars. While we will vote affirmatively on the proposition for a larger car it will be with the thought, of course, that the smaller car (1932 design) will be an optional standard. In that box cars are seldom loaded to axle capacity it is our experience that the 40-ton car is the most economical for our merchandise business, rather than the 50-ton car of equal cubical capacity requiring 5½-in. by 10-in. axle journals.

The new steel-sheathed, wood-lined, 40-ton box cars which are being constructed on this year's program in our own shops will conform to the latest A.A.R. design and specifications issued in June 1932. We were able, by using alloy steel in the center sills and partial arc welding in assembling, to realize a light weight of 41,100 lb. or 1550 lb. less than the 1932 A.A.R. standard 40-ton car weighing 42,650 lb. However a much greater reduction in tare weight could have been made by extensive use of alloy steel and welding throughout.

It is noted that no provision is made by the Car Construction Committee for a hopper car of 40-ton nominal capacity and that studies thus far have been confined to 50 and 70-ton cars. I am not taking exceptions to the standards recommended, but from our experience with the collieries and their customers the car in popular demand for anthracite shipments is the twin hopper of about 50 tons carrying capacity.

In 1936, we built in our shops a sample 40-ton nominal capacity, all-welded, steel, twin-hopper car capable of carrying 51½ tons on trucks with 5-in. by 9-in. journals. This car weighs 32,700 lb. and has 1752 cu. ft. capacity—level full. On the basis of 52 lb. per cu. ft. and usual heap load, the car can actually carry 103,012 lb. of anthracite which permits a ratio of pay load to dead weight of approximately 3.15 to 1.

This car was specially designed by us to achieve this purpose which, together with the use of alloy steels and arc welding, made it possible to construct a car which actually carries 51½ tons of anthracite yet rates as a 40-ton nominal capacity car under Rule No. 86 because of having 5-in. by 9-in. journals. We

have received many favorable comments concerning this car from the coal dealers particularly since it is entirely self-clearing, the hopper spacing being such that only one spotting of car is necessary to effect unloading.

Now what I want to point out is that a light weight car of 70-ton nominal capacity could be designed to carry, roughly, 90 tons of anthracite and the 50-ton nominal capacity car, similarly constructed, would be capable of carrying approximately 70 tons, consequently putting us back in the 70-ton class car.

It is my information that a 70-ton carrying-capacity car is undesirable for anthracite shipments, therefore what I would like to know is what consideration, if any, the committee has given to a light weight, all-welded, hopper car capable of carrying 50 tons of anthracite on 5-in. by 9-in. trucks, which I think will be in demand.

Mr. Kiefer: A study of the standards that have been set up reflect in no way whatever developments of lighter welded constructions. Of course I hardly wish to say at this time that a welded standard car could be put out, but efforts in that direction are not only permissible as far as standards are concerned but are really welcomed in a desire to capitalize on them. Mr. Ditmore referred to a 40-ton hopper. As far as we have been instructed, there is not sufficient demand to make it worthwhile to produce such a design, but of course, if that demand should develop, a standard design of that capacity can be provided. I don't want to tackle something that will be used to a very limited extent, because that takes too much time and the effort of too many people.

D. J. Sheehan (C. & E. I.): During the past year we had occasion to build 500 steel box cars and we followed the 1937 design to the letter. These cars have been in service now for about seven months and are most satisfactory.

It was suggested by someone that the floors of the standard A.A.R. box cars be increased on account of breakage from the lift-truck load, concentrated loads on small wheels. We have experienced considerable difficulty with this, and I might say that we have considered increasing the thickness of the floor.

We have had some trouble with carding boards on the 9-ft. 2-in. car, a lot of boards having been raked off, and we are looking for a new location where they won't extend out quite as far as they do now, particularly when applied on a corrugated door.

Mr. Kiefer: I can fully appreciate the situation outlined by Mr. Sheehan. However, one of the responsibilities of the committee is to produce a car that is not overweight, and the only thing I can think of offhand to suggest would be that we might produce an alternate construction in some form of heavier floor, which would then become part of the specification and would relieve the situation, such as has been here cited.

The cardboard holder would be a matter for the Arbitration Committee. We can produce any kind of a design, and we can arrange to apply it in most any location on the car.

K. F. Nystrom (C. M. St. P. & P.): We have tried to follow the A.A.R. construction on both house cars and hopper cars as conscientiously as we can. We have employed welding throughout the cars. I feel that the development in welding has been so rapid that the committee has not been able to keep up with it. I believe that in the future we will undoubtedly submit proper designs.

We find, particularly in going into spot welding and series welding, that the design of the hopper car as it now stands is not practicable. It has to be re-designed.

In connection with the hopper cars, we can't follow the A.A.R. design completely.

It might be interesting to note that we have built five hundred 50-ton hopper cars, and we are just starting to build another 500. In the last 500 cars we have taken full advantage of our experience in the welding. In so doing we have been able to order mill sized sheets without any restrictions on the mill. We can take care of a variation of 7/8 in., for instance. We do not need to cut and we do not need to pay anything extra to the mill.

To me, welding holds out almost unlimited possibilities. Some parts will fail, but after six years' experience with the cars in actual service, the failures have been very few and the welded car stands up much better in wrecks than the riveted car.

There are difficulties in connection with rivets which we have never been able to overcome.

Mr. Robertson pointed out the importance of insulation in a

house car. I believe that the time is here when very few railroads can afford to build a box car without an insulated roof. We have taken extreme precautions in insulation. We know that if we have a screw in contact with the outside steel framing that will draw large quantities of rust. We have put in nailing strips for the roof insulation, thereby eliminating direct contact between the inside and the outside.

The committee reported that the single-sheathed box car is no longer in demand. The Milwaukee has been a large user of single-sheathed box cars. I made a check recently and found that when we give these cars general repairs, 50 per cent of the material is lumber, and around 42 per cent of the labor is to remove and apply the lumber. In that light I do not think that anyone can afford to use or build a single-sheathed box car. Many roads are steel sheathing their box cars, and I believe they all ought to be compelled to do it.

Mr. Kiefer: As to the insulation of the box car, it is not our knowledge and opinion that that point has been reached where all roofs should be insulated. In the meanwhile any railroad can use any form of roof insulation that they wish.

SIDE FRAMES AND BOLSTERS

Mr. Ditmore: We agree with the committee in its report on alloy cast steel for side frame and bolster construction since the general trend is towards weight reduction. While the objective sought is an increase in the pay load, the question that arises is whether the weight reduction and the resultant increased paying load will be sufficient to justify the increased cost the railroads will be obliged to pay for alloy cast steel.

PASSENGER CAR AXLES

Mr. Kiefer: On the report regarding passenger car axles the chairman has asked me to explain briefly what will be involved in the research program that is being undertaken. It is simply this: That an appropriation has been approved for the purchase of two machines capable of testing full-size axle specimens to destruction under fatigue. The machines will be similar to the one that has been developed and installed in the Timken Roller Bearing Company's plant.

Certain designs of axles and axles of different materials will be placed in this machine and tested to destruction under fatigue to determine, just as accurately as possible, what should be done in the way of stepping up the axles to meet these new conditions.

This work will be under the immediate direction of Mr. Wallace and under the general direction of the Joint Sub-Committee of the Mechanical Division. It is thought that the machine will be installed in about eight to ten weeks and the work will be expedited just as much as possible.

In the meanwhile, however, in view of the urgency of the

matter, we have submitted, as contained in the report, designs of axles and materials for axles that we think are of such character that no road would go wrong if they used them—that is, if they have reached the point where they think some changes ought to be made on account of higher speeds and heavier loads and so forth, which has been done quite widely so far.

JOURNAL BOXES AND DETAILS

Mr. Ditmore: We are in accord with the Committee's recommendation to increase the diameter of the inner wall opening in journal boxes to agree with the back wall opening horizontally, but suggest that consideration be given to lowering the back wall from $1\frac{1}{8}$ in. to $1\frac{1}{2}$ in. to permit the water that enters into the dust guard well to flow out before it reaches the inner wall level and becomes mixed with the journal box packing.

We are glad to see that the committee recommends efficient means for closing the dust guard wells. There is no question but that this is a marked improvement over the present practices of applying plugs driven in the well opening. These plugs are seldom of any value, since they are soon lost by the action of the dust guard when cars pass over frogs, cross-overs, etc. All integral frames we are applying are provided with knobs cast integral with the box. The wooden plugs we apply have a $\frac{3}{8}$ -in. projection in the well and are secured by wiring to these knobs. On existing journal boxes the same principle applies, drive screws being used in place of the integral knobs.

I am explaining our practice, since your recommendations have to do with future cars and it occurred to me that you may wish to give some consideration to existing conditions.

J. McMullen (Erie): We have not done anything in regard to existing journal boxes. We figured that we had to make a start some time and that was why we felt that the cap covering the dustguard opening would be far ahead of the plug, because we all know that in walking through the yards we see equipment that has been built only a few months with 50 to 75 per cent of the plugs missing. By applying this cap I think it will help a great deal in keeping water from getting into boxes, especially of tank cars. On tank cars, the water just rolls down the tank and pours right into the opening of the dustguard.

Mr. Ditmore: Notwithstanding what the chairman said I still believe we have a trap there for the water in the journal box. Considering the small amount of oil lost, I believe it would be well to open up the trap to expel the water. We have a lot of hot box trouble, particularly in the wintertime, due to water getting into the boxes. Even though the dustguard openings are securely closed, water is bound to flow into the journal at the back of the wall seat, and there is no way to get it out. If you had an opening in the bottom it would let the water out.

(The report was accepted and necessary recommendations ordered submitted to letter ballot.)

The meeting then adjourned.

* * *



On the Chicago & Eastern Illinois—The Dixie Limited on Her New Schedule



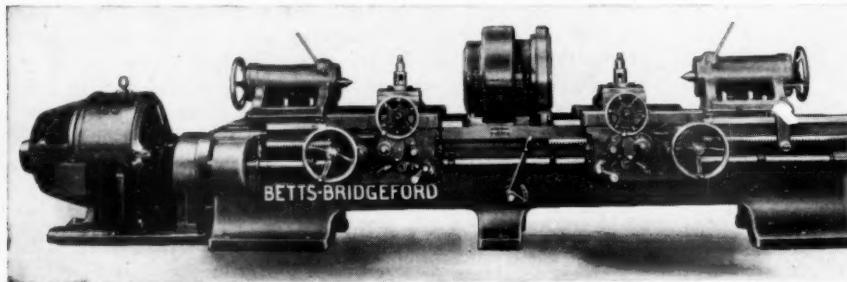
A Streamline Passenger Locomotive Recently Delivered to the New Haven Alongside "The Comet" at the Providence, R. I. Station

New Devices . . .

Center-Drive

Car-Axle Lathe

Consolidated Machine Tool Corporation, Rochester, N. Y., is exhibiting a Betts-Bridgeford center-drive car-axle lathe, which is designed for rough and finish turning axles complete, including burnishing of journals. The bed ways of this lathe, in contrast to the usual practice, are of steel plates hardened and ground and anchored by tongue and groove to the bed. The carriage bearing surfaces, which in



Betts-Bridgeford Lathe for Rough and Finish Turning Axles Complete

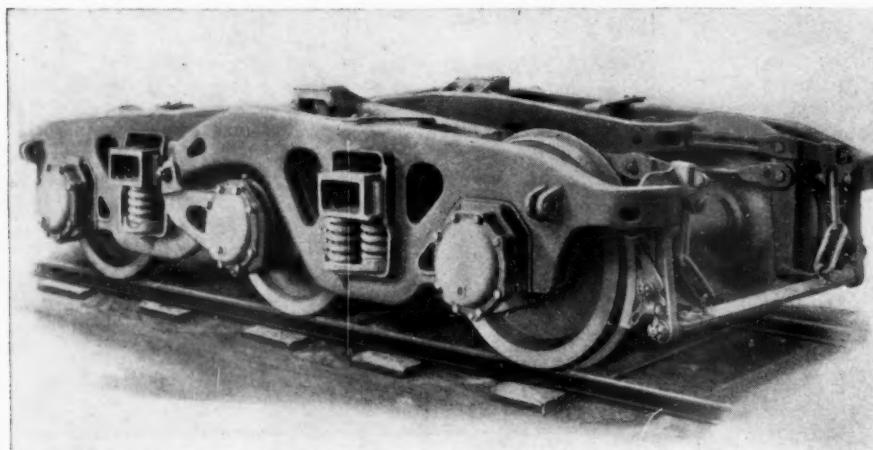
standard practice are of gray iron, are faced with heavy bronze linings, so arranged that the linings can be renewed. This design was adopted to solve the problem of continued accuracy on these machines as they grow older in service. Full Timkenized tailstocks, which are not to be confused with roller-bearing centers in ordinary tailstocks, constitute another important feature. Adjustable collars are provided on the feed shaft for automatically knocking out the feed for both carriages at any pre-determined point.

Six-Wheel Tender Truck Of Grade-B Castings

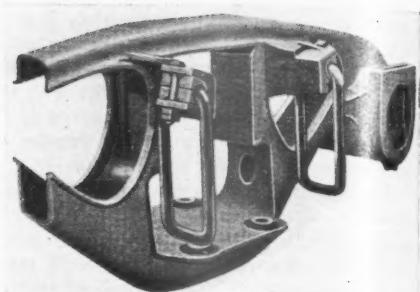
The Buckeye Steel Castings Company, Columbus, Ohio, is featuring at its exhibit a scale model, complete in all details, of

the Buckeye six-wheel tender truck. The prototype of this truck is now being made with grade-B steel castings throughout which, in combination with the positive equalization common to these trucks, makes for lighter weight for any given capacity than would be obtained through the use of grade-A steel. The weight advantage of the grade-B steel truck reduces wheel loads, or permits the tender to be designed to carry more fuel and water without increasing the wheel load. The Buckeye six-wheel truck incorporates either plain or roller bearings, clasp or

single brakes hung from the truck, clasp brakes with or without cylinders mounted on the truck, a friction snubber spring incorporated in the usual cluster of resilient spring coils, and wear surfaces fitted with manganese-steel wear plates to increase surface life.



The Buckeye Light-Weight Six-Wheel Tender Truck with Grade B Steel Castings

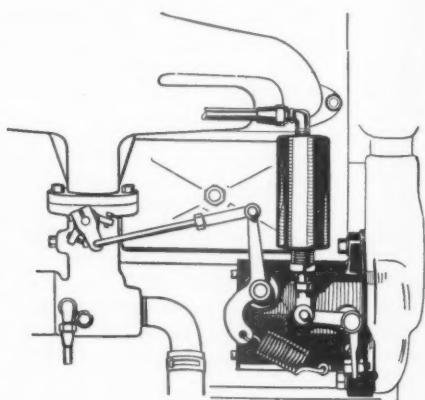


Application of the Mobil Brake-Hanger Suspension Retainer

lock the retainer together. The taper of the retainer castings corresponds with that of the bracket opening, making a tight fit when applied. Lateral movement is prevented by shoulders on the retainers and the ribs in the brackets.

Modulated Control for Air-Conditioning Units

Modulated control for gas-powered railway air-conditioning units has been developed and is being exhibited by the Waukesha Motor Company, Waukesha, Wis. This feature eliminates at least half the cycling of ordinary thermostatically controlled refrigeration units. As the cooling demand becomes less, the engine is reduced in



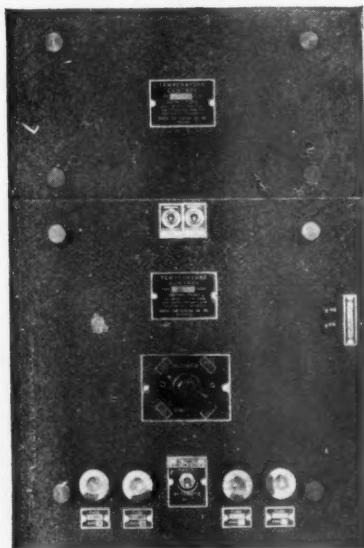
Modulated Control Unit for Waukesha Gas-Powered Air-Conditioning Units

speed rather than shut off completely. Refrigerant suction pressures act upon a sensitive sylphon bellows of the modulator, which in turn acts directly upon the built-in governor of the ice engine. Speed is reduced and, thus, the cold-producing capacity is less. In addition to the less frequent cycling and consequent reduced wear, modulated control maintains a nearly constant humidity. The temperature of the cooling coils of any refrigerating mechanism rises during the periods when the compressor is shut down, and these warmer cooling coils, failing to condense as much of the water in the entering air, causes the humidity rises. With the constant flow of refrigerant through cooling coils as provided by modulated control, temperature of the evaporator is fairly constant and low humidity is maintained.

Automatic Controls For Air Conditioning

An interesting development in the field of air conditioning is being exhibited by the Vapor Car Heating Company, Chicago, in the form of its newly designed correlative temperature-control equipment. The operating control for air conditioning is thus much simplified, only one switch being required on the control panel, with four positions: Off, Ventilating, Heating and Cooling. When this switch is turned to the required position, the regulation of temperatures is entirely automatic, through the functioning of special single-tube thermostats which maintain desired inside temperatures in direct relation to the outside temperatures during cooling operation; and corresponding control of desired heating temperatures in relation to passenger heat load. When neither heating nor cooling is required, fresh air may be circulated through car by setting the switch on the control panel to Ventilating.

No floor-heat switches are employed, as the required floor heat is controlled automatically by the thermostats. The manual interlock is maintained with correlative



Vapor Correlative Temperature-Control Panel for Use on Air-Conditioned Cars

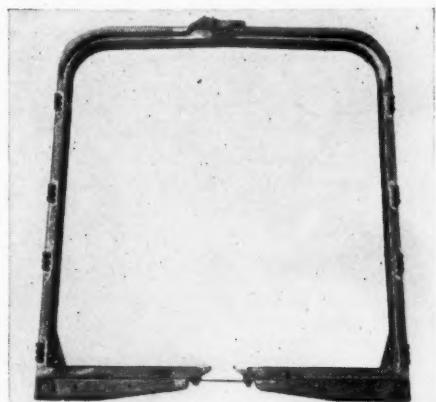
temperature control; i.e., when cooling is in operation, all heating is positively cut out, and vice versa.

To prevent the possibility of freezing during lay-over periods, low-temperature floor heating is automatically put in operation by turning the switch on the control panel to Off position, which cuts out all thermostats except the floor-heat thermostat. The operating of the automatic air-selector switch maintains the desired minimum temperature during lay-over.

Correlative temperature control for air conditioning is applicable to any type of car, as one master thermostat can be arranged for operation of as many additional thermostats as may be required for different rooms or compartments.

Welded Car-Frame Construction

In the auditorium exhibit of the Bethlehem Steel Company, Bethlehem, Pa., there is shown an all-welded body bolster for



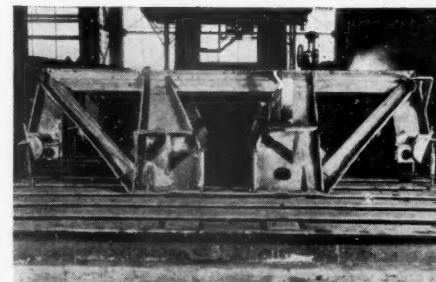
All-Welded End-Door Frame for Box Car

hopper cars and an all-welded end-door frame for box cars.

The all-welded body bolster, for hoppers-type cars, is made of plates and shapes welded together to form a truss construction with push-pole pockets attached to the end member. Brackets for the support of the air-brake equipment are welded to the bolster frame. A number of these body bolsters have recently been put in service. They are lighter than the cast-steel type sometimes used.

The welded end-door frame consists of pressed plates welded together to form end sills, side posts, and the end roof member. Hinge butts are welded to the side posts, and the door locking members are welded to the roof section and the end sill. Thus, a one-piece structure is obtained which is ready for application to the car. This construction offers saving in weight over the steel castings and riveted structures formerly used.

Improved welding practices, a new type of alternating current transformer which

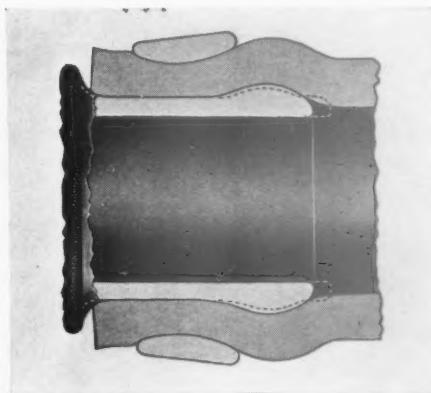


Cement-Car Body Bolster Made of Plates and Shapes Welded Together to Form a Truss Construction

eliminates arc blow when welding in corners, and positioning fixtures and handling devices have been developed to permit a maximum of down welding in the construction of the underframes previously mentioned.

Hose Fittings with Ball-Contour Ends

Among the exhibits of the Westinghouse Air Brake Company, Wilmerding, Pa., are hose fittings—coupling, nipple, and clamp—designed to permit more secure clamping and to reduce possibility of hose cutting. The shank of the coupling and nipple is shortened and the end reshaped to a large, smooth, ball contour. This gives a greater hose bearing area which reduces the liability of damage to fabric cords when hose are pulled apart, and decreases the possibility of cutting the inner



Ball-Contour Ends of Hose Fittings Eliminates Hose Cutting and Permits Secure Clamping

tube by hose movements of external blows. The inner face of the clamp is shaped to the contour of the nipple. These matching contours bring a greater area of the hose into clamping contact and put it into compression rather than shear. To further increase the security of hose assembly the clamp is made wider and the bolt stronger.

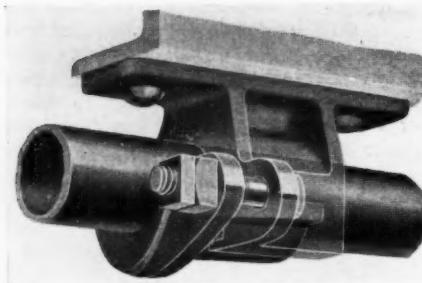
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Velmo Wire-Loom Horizontal-Stripe Car Upholstery In-Cut with a Raised Looped Pile Giving a Simple Modern Third-Dimensional Effect—Exhibited by L. C. Chase & Company, N. Y.

Wright Pipe Clamps

A complete line of pipe clamps for all classes of equipment is included in the exhibit of the Illinois Railway Equipment Company, Chicago. The feature of the clamps is that positive clamping action is obtained by the adjustable tapered wedge



Wright Train-Line Pipe Clamps As Applied to the Side Sill of a Hopper Car

which is locked against movement by the bolt parallel with the pipe. The wedges are removable and interchangeable. The clamps are designed to provide a long supporting bearing surface to prevent damage to the pipe because of vibration.

Oscillator for Field And Laboratory Tests

The Baldwin-Southwark Corporation, Philadelphia, Pa., is exhibiting an oscillator, for all kinds of dynamic tests, which can be built in sizes small enough for laboratory tests of units as small as springs, and big enough for vibrating units as large as locomotives. The machine consists of two eccentric masses rotating in opposite directions. These masses, by adjustment of their eccentricities and the rotational

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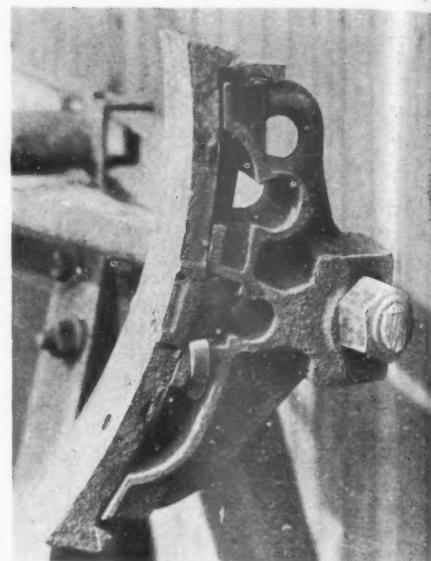


Velmo Car Upholstery of Diagonal Design in a Combination of Cut and Un-cut Pile Giving the Appearance of a Soft Rolled Diagonal Stripe—Exhibited by L. C. Chase & Company, New York

speed, produce vibrations of any desired frequency and amplitude. The rotational speed may be varied from 0 to 6,000 r.p.m., and the capacities range from 0 to 2,000,000 lb., making it applicable for inducing combined static and dynamic loads on any material or fabricated structures of practically any size.

The outstanding advantages of a testing machine of this type are: It can be taken to the structure or materials under test; it can reproduce load conditions met in actual service; it can be used to test complete welded or riveted assemblies, obviating errors arising from testing smaller constituent parts; and it is less expensive than other testing equipment of comparable capacity.

The oscillator investigates failures in the field by analyzing aging and fatigue, natural frequency, damping capacity, amplifying factor, and insulating effect of different materials.



Application of Wear Plate to the Brake Head

worn the brake head may be it can be restored to its original dimensions.

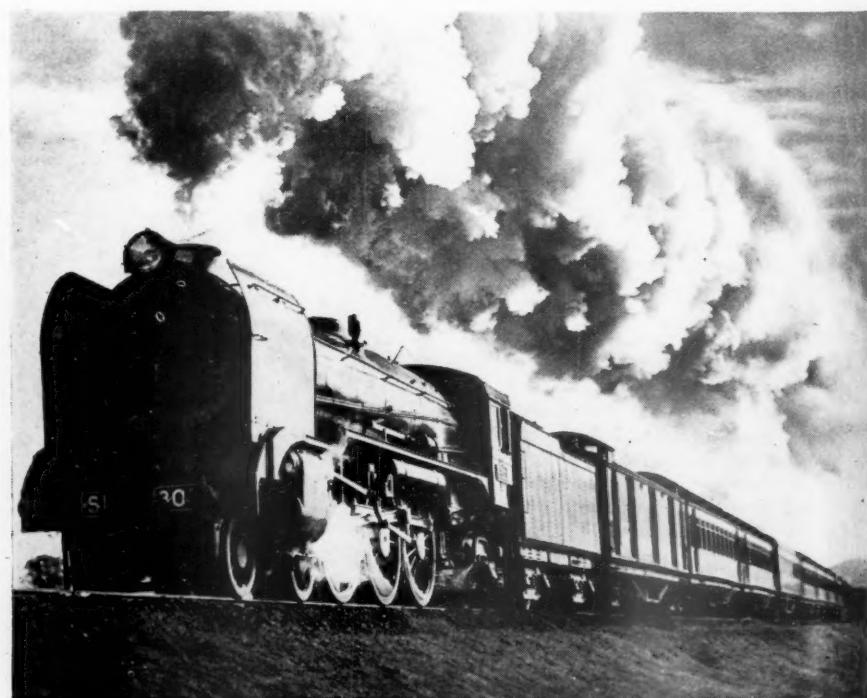
Brake Head Wear Plate and Key Wedge

The Illinois Railway Equipment Company, Chicago, is exhibiting its brake-head wear plate and key wedge designed to prevent wear and increase the usable life of brake heads. The vertical movement of the brake shoe wears a groove in the bottom head lug and also wears off the upper brake-head toe. The plate fits over the bottom lug, thus closing the space between the two lugs between which fit the brake-shoe lug. The legs of the plate are bent under the lug to prevent displacement when a shoe is changed.

The wear plate is made in various thicknesses so that no matter how badly

Bronze Welding Rod

A bronze welding rod recently introduced and now being exhibited by The Oxweld Railroad Service Company, New York, handles in a manner similar to Oxweld No. 25 M. bronze rod, having the same non-fuming and working characteristics, but has the added property of retaining its hardness under very high temperatures. Although not a bearing bronze, it is recommended for use on parts subject to wear at elevated temperatures or severe and heavy loadings.



The Victorian (Australia) Railways' Most Important Passenger Train—the Sydney Limited, Operating between Melbourne (Victoria's Capital City) and the Border Town of Albury Where Passengers Transfer to Train of the New South Wales Railways